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A JOURNAL DEVOTED
 TO BEES
 AND HONEY
 AND HOME
 INTERESTS

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"DAME NATURE I love, and I believe she loves me," says A. I. Root, p. 237. I have a very warm affection for the old lady, but I have some doubt about the feeling being reciprocated, from the merciless way in which she whacks me whenever I break any of her laws.

IN TALKING about travel-stain, one thing seems mainly left out of view. My bees fill sections and seal them snow-white; then if left on the hive long enough they darken them. They're capped white, then I suppose the bees carry up dark matter to put on the surface, but not, I think, with their feet.

THE WORD "SIC" is sometimes used to show that there is something wrong about the word after which it is written, or something wrong about the way the word is used. As used by Critic Taylor, of the *Review*, it seems to mean that the word is a good English word as used, only he hasn't yet learned it.

"IN ONE OF RAMBLER'S letters he speaks of the cherry trees of Oregon as being a great place for bee-men."—GLEANINGS, page 212.—Do all the bee-men out there roost on cherry-trees? [That's another case of "locality," doctor. The bee-keepers should be in the "locality" of the trees, not in 'em—till the cherries are ripe.—STENOG.]

IT DOES SEEM as if that thin-base and thick-wall business, p. 218, was a step in advance, but I'll not gratify the editor by saying so. A man who calls a worker "he" ought not to be encouraged. [Yes, I am satisfied that the new thin-base foundation is going to solve the problem of no gob in comb honey. The work of experimenters in the past all points in the same direction.—ED.]

J. E. CRANE, p. 214, is in line mainly, but not entirely, with Cheshire. When it comes to the rock-bottom question, "What causes the dark color in combs?" they are radically apart. Mr. Crane says, "The brown cocoon

is left, and gives its color." Cheshire says the color comes from the undigested contents of the bowels of the larva being plastered on the wall of the cell. Both agree that the dark color primarily appears in the cell where a young bee is reared.

IN ORDER to break the news gently, I may say that I'm getting ready to report a case of bad wintering. I'd give \$50.00 for a bright day at 50° on or before March 20. *Later.*—March 20, 12° above zero! [I am afraid there is many a bee-keeper in your predicament. This continued cold weather during February and March scares many—at least puts them in a position so that they hardly know what to expect.—ED.]

MR. EDITOR, if you get *Apis dorsata* here, please keep her chained until you *know* she can be domesticated, and will not merely use up nectar that we need for our hive bees. [I do not worry about *Apis dorsata* taking up the nectar that would otherwise go to our hive-bees; neither do I fear that there will be any other form of disaster follow their introduction. If they are migratory, and appear incapable of being hived, I can not see even then that they can do any harm.—ED.]

HE, SHE, OR IT? You may "he" the worker all you like, but I prophesy that in ten years "Stenog" will have instructions to change to "she" every "he" of that kind sent in. [Why is not *it* better than the other two? Functionally the worker-bee is not capable of reproducing its own kind—never was, and never will be. Indeed, it has been styled, for ages, a "neuter." Then why not call it *it*, and thus avoid either horn of the dilemma. There seems to be about as much good authority for *he* as for *she*, and no objection to *it*.—ED.]

W. S. PENDER says that, instead of putting sheets of foundation in the usual way, he cuts the sheets in two and hangs it t'other way, and then it doesn't stretch. Does that mean it stretches more readily the way it has been already stretched? [It is true, I think, that foundation stretches less when hung the opposite way to what it is ordinarily supported, than when it is fastened in the usual manner,

We are just planning to reverse the hang of the cells on our rolls, because we know it will be an improvement to have them the other way.—ED.]

IS THAT SOY BEAN, p. 239, worth any thing for honey? and is it the thing that is used to make flour that diabetic patients can use? [Yes, doctor, the soy bean does produce honey; but, as with many other plants of that class, sometimes the bees work on it and sometimes they do not. All of the leguminous plants, as a rule, are honey-producing. In the Old World the soy bean is much used for food; and just now attention is being turned to it in this country. Cooked green, like green peas, they are said to be delicious; but, to tell the truth, I have never tried them in that way.—A. I. R.]

FOUNDATION made on the Rietsche press will not stretch at all when brood-frames are filled without wiring, says M. Devauchelle in *L'Apiculteur*. R. Pincot says the same thing in *Bulletin de l'Aube*. The explanation is that the wax, not being sheeted, has its particles take their natural places on cooling, while the stretching on the cylinder weakens the foundation, and leads to stretching and breaking down. [Foundation made on the Rietsche press, as it will be made by the average bee-keeper, will be much heavier per square foot than that ordinarily made on rolls. In proportion as it is heavier, in that proportion it will offer a greater resistance to stretch; but weight for weight, per square foot, I can not believe it is any better than the ordinary rolled foundation.—ED.]

So, MR. EDITOR, you were surprised I did not find out how much hotter boiling honey was than boiling water, page 233. Now look here. When *you* couldn't find out—*you*, at the p'ace thermometers come from, you at the fountainhead of temperature, the place whence radiate light and heat, what could you expect from a lone, defenseless, private bee-keeper, away out in the wild West? You oughtn't to hint at such a thing from me, although you might expect it from an ex-experimenter. [In spite of the fact that we once had a big stock of thermometers, we did not have on hand any that were more serviceable than those you have right in your own house. But I found out more than you and Taylor, at all events.—ED.]

ON READING that bright way of straightening tile, p. 239, and the nest-egg business, p. 241, it made me feel sad to think A. I. Root rode the bee-keeping hobby so fiercely that it threw him off. If he had been content to ride more slowly, he would now spend more of his time thinking up bright things for bee-keepers, instead of nosing around in tile-drains and hens' nests. [Now, doctor, that is real mean of you to talk about your old friend in that way. Bee-keepers can not live on honey alone; and by the way the rest of you keep discussing and arguing about this and that in bee culture (that has been discussed for forty years), I should think you would be glad to have somebody, who is able to think up bright things, look after the interests of bee-men and their

families outside of the regular bee-business.—A. I. R.]

THAT MICHIGAN LAW, p. 233, reads a little loosely in two spots. Does section 1 mean the governor shall appoint a man of his own selection when the bee-keepers recommend him to make such appointment (as it reads on the face of it), or does it mean he shall appoint the man recommended by the bee-keepers? In section 3 it isn't as clear as it might be, of what the inspector is to be "sole judge." [It does not seem to me that it would make any practical difference whether the governor appoint the man recommended by bee-keepers or whether they appoint the man themselves. While there is a slight difference, so long as the selection meets the approval of both parties I would let the bill stand as it is. There is hardly any law (and I speak advisedly on this point) that is perfect in its wording.—ED.]

ON READING that reply to H. K. J., p. 230, I am moved to ask, merely as a question, with my hat off and a most apologetic bow, whether one good time to Italianize might not be about the time many new governments are formed and new rulers inaugurated, say about the middle of the honey season. [Yes, that is a good time to Italianize; but that time of year is very limited—generally not more than two weeks; and if one wants a queen he is quite liable to wait her outside of that limited time. If a colony were working in the sections, and doing nicely, I would not think of disturbing their good work by attempting to introduce a new queen-mother. And then, is it not true that introducing young queens before the honey-harvest will have a tendency to keep down swarming, providing that queens removed are two years and over in age?—ED.]

"IF A SCIENTIST boils his foul-brood germs in beef gelatine, or pure-culture fluid, the specific gravity of the gelatine will be about the same as that of honey," says the editor, p. 234. I'm afraid that won't help us. If I am correct, the spores were heated to 212°, or else heated in culture-tubes which were kept in boiling water. I'm off the fence, standing straight up beside Bro. Taylor. Whenever I see—and I doubt if I ever shall see—sufficient reason for it, I'll take to the fence again, and then Bro. Taylor will make unpleasant remarks about my hasty change of opinion. Let's be thankful that the shorter boiling will do, even if Bro. Taylor does belabor us for fence climbing. [I am not going to climb any fences just yet. The fact is, Mr. Buchanan boiled some of his honey a good deal longer than fifteen minutes, and did not kill the foul-brood spores. Here was an actual case; and if a temperature of 212 did not kill those germs after two hours' boiling on the part of the scientists, I very much doubt whether fifteen minutes' boiling at a temperature of 240 or 250, say, in honey, would do any more. I still insist that I am safe in staying on the long-boiling side of the fence; but I am not safe (until I have better information than I now have) on the other side. If the situation had been reversed—that is, had the average bee-

keeper considered two hours insufficient to kill the foul-brood spores, then if I had had the evidence from two or three that fifteen minutes' boiling was enough, and had flopped over to that position, then I might with fairness be accused of changing my mind hastily. I chose to take the safe side of the fence, and still think I am justified in holding to that position—especially so as Mr. Taylor says I have a following who will take my advice. I have written to Mr. Thos Wm. Cowan, and am waiting to hear from him on this point, for I know he will approach the subject from the standpoint of a bee-keeper and a scientist.—
ED]



You never hear a bee complain,
And this sad world bewail:
But if she did, she could unfold
A very painful tale.

The lines above were sent me by J. L. Peabody, of Denver. They were read by him in reply to a toast at a church meeting in that city—"Drones in Plymouth Hive."

PROGRESSIVE BEE-KEEPER.

Somnambulist and others have my hearty thanks for kind words concerning myself. For any display of genius, however, a department of this kind offers about the same inducement that the edge of a board does to sleep on.

F. L. Thompson writes a long article on facing honey, and I must say it is good. If I were to give the spirit of his sermon it is this: The seller should let the buyer know as much about the article sold as the seller himself knows, inside and out.

For the production of extracted honey, H. H. Hyde says one must have a strong colony, No. 1 queen, plenty of honey, lots of room for egg-laying. Mr. Hyde says queen-excluders are worse than useless—the greatest curse ever put on bee-keepers. Whew! That seems to contradict what a host say about excluders. Can't "locality" be used as a scapegoat here?

The poet of the *Progressive* goes too far when he speaks about the churches stoning women. The intimation is not true. In the case cited, I have no doubt the reformed woman would fare as well in the church as at the hands of Mrs. Mitchell if she should find her husband in company with said woman. But Mr. M.'s lines are, as a whole, good. His only defect is a strong bias against Christianity.

BEE-KEEPERS' REVIEW.

C. Davenport is breeding out Italian blood in favor of the German brown bee. He thinks the latter caps the honey whiter, besides hav-

ing some other redeeming traits that the Italians do not. His views will excite much discussion. Mr. D. makes a specialty of honey.

"Blame where you must,
Be candid where you can."

It strikes me if all bee-writers were a little more *candid*, instead of being so very *candid*, there would be less fur in the air. Why can't hives and machinery be discussed as calmly as the weather? A change of mind ought to occasion no censure and need no apology. Minds worthy of the name always change on evidence.

T. F. Bingham contributes a good article on how to keep bees good-natured. Smoke is one of the means he uses. He says no one should go among bees without a cape made of cheese-cloth to fall over the neck and shoulders, to keep bees out of the hair. A bee once rendered vicious will always stay so. He finds a pair of old gloves, with the thumb and first finger cut off, a great help in handling bees. They also protect from the sun's heat. He kills bees that follow him around.

A new department seems to be a leading feature in bee-journals now. "Good Things from Other Journals" is the name of the one just started in the *Review*. It is under the management of our genial friend Dr. A. B. Mason, of Toledo. He has 2¾ pages as a starter. Dr. Mason is too well known among bee-men to need any support from me; but what he says between the extracts is good. Here is something that is true: "There is so much that is good in the different bee-journals that it will be no easy task to select what is best."

R. L. Taylor criticised Dr. Miller for using the expression, "bring to a boil." The doctor defends his usage by referring to the Standard Dictionary, the latest and by far the largest work of the kind ever printed. Mr. Taylor objects, saying no other dictionary makes any mention of "boil" as a noun in this sense (heating water). Dr. Miller is entirely right. Dictionaries record current usage of words just as newspapers record events. A paper of to-day recording a fire this morning has more weight in proving the disaster than all other papers printed yesterday. But all dictionaries would speak of "*Christian* behavior" instead of *christian*, as the adjective is derived from a proper noun. But that may have been a misprint on Mr. Hutchinson's part. *Sic* 'em, Tige!

AMERICAN BEE JOURNAL.

Mr. Secor has the following line:

May the strength which I gather while Day's in the West.

I get no meaning from it, as I do not know what Mr. Day went west for.

J. M. Hambaugh suggests the election of Mr. Dadant (probably the younger) to the Illinois Legislature, in order to work for a foul-

brood law. Some States, I am told, make persons ineligible to that office unless they were born in the United States. If that does not interfere he would honor such a position.

Dr. Miller thinks catalpas are not of much value for honey, although bees are plentiful on them in the spring. Bees swarm on them here, but the blossoms, I should judge, are destitute of honey.

Mr. Getaz begins with a serious investigation of the subject of "locality." He admits it sounds like a joke, for, of late years, this word has been used to account for every irregular and strange antic the bees cut up, a good deal as some folks lay all their trouble to the weather. He shows plainly how much his management in Tennessee must vary from that of a man living in the middle of New York.

CALIFORNIA ECHOES

BY J. H. MARTIN.

I would say to Bro. Wilkin, in reply to his remarks upon page 95, that I prefer the slatted zinc honey-board for the reason that it at all times has the proper bee-space, and the fact that he has to peel it off from the hive is a sufficient condemnation of it. It sags down, holes get stopped, and unless there is more care exercised than by the most of the California bee-keepers there will be many of the bees killed when putting them on the hives. In fact, there is no end to the evils of the plain sheet-zinc honey board.

The Chamber of Commerce of this city is an up-to-date organization, and at this writing they are considering the feasibility of producing rain by artificial means. Prof. T. S. C. Lowe, the great balloonist of the Federal armies during the rebellion, and now a resident of Pasadena, has given the Chamber many valuable suggestions in the line of rain-making. Los Angeles spends many thousand dollars nearly every year upon a fiesta, which is ninety per cent foolishness. Prof. L. says that an equal amount spent in an effort toward rain-making would result in much good. He says it is not necessary to bombard the skies by firing cannon. The release of certain gases and the creation of smoke will answer as well. I hope the experiments will be tried, and hope to report the results a little later.

I wish you would not allow Dr. Miller to say so much about having hives with the worse than useless hand-cleats clear across the ends of hives. Of course, there is no objection to the doctor using such out-of-date things, but what is the use of allowing him to harp and harp upon it? Say, doctor, if you want to get such a tight grip upon your hives, why not put on handles such as they use on coffins? Don't allow yourself to use that pug-nose affair recently illustrated in GLEANINGS.

Get something substantial, as I have recommended, and then stop harping about it, and there would be a great relief to a long-suffering community who believe that simple hand-holes are a good-enough handle to a bee-hive.

Not long ago I received a honey-leaflet from parties in Denver, and it had a beautifully illuminated cover, and I immediately recognized the design and the coloring as one of my long-lost children. I was pleased to find a good use made of it, and perhaps the Root leaflet would be more effective with that or some similar design. I fail to see where it would be improper to use artistically illustrated honey-leaflets with as much vigor as that used in advertising pickles or chow-chow.

Bee hive manufacturers on this southern coast are preparing for but not anticipating much business during the coming season. There will be any quantity of empty hives in every apiary. We hear of quite a number who have nothing now but empty hives. Mr. Madary, supply-dealer of Central California, put in a minute's appearance at the State association meeting in January. He expects a fair trade in his locality. Alfalfa yields honey every year, for it is under irrigation. The amount of the honey crop is, however, dependent in a certain measure upon the atmospheric conditions, and these conditions are better after a normal rainfall.

The moving of bees is still a topic of interest to our bee-keepers. Where to move is the question. A Santa Monica man is about to move a wagonload of bees into Inyo Co. This involves a haul by team across the Mojave Desert a distance of 150 miles. I do not envy this man his job.

Mr. W. T. Richardson and wife, who spent several months in the East, have returned to his ranch and his bees in the Simi Valley. He reports better bodily health, but a sickly dry-weather feeling when he considers bee-matters. A goodly number of his 1200 colonies are still on deck, but a good amount of feed will be necessary to carry them through the season, provided it does not rain. Our conversation in this country is regulated by that proviso.

Messrs. Wilkin and McIntyre will move a large number of bees into the Bakersfield country. They think it will pay them, even if they do not get much honey, or merely enough to carry their bees through to another season.

Recently a young bee-keeper was holding up to ridicule some ideas of bees and bee-keeping entertained by his best girl, when she exclaimed, with some spirit, "Well, Charlie, I have lived through two dry winters in this country to some purpose. I am not so green as I look."

In sending queens to Jamaica by mail, a customs declaration *is not* necessary. Some parties sending us queens have made declarations, thus causing delay at both ends of the route. JAMAICA BEE-SUPPLY COMPANY.

Mandeville, Jamaica, W. I., Nov. 9.

GENERAL CORRESPONDENCE

LARGE HIVES FOR COMB HONEY AS WELL AS FOR EXTRACTED.

The Laying Capacity of Queens Adapted to Large Hives; Position of Doolittle and Hutchinson Criticised; Relative Value of Large and Small Hives for Wintering.

BY CHAS. DADANT.

As I have been the promoter of large hives, not only in America but especially in Europe, I desire to add some explanations to the articles of my son.

When I came from France to this country, 36 years ago, I had already owned bees and studied bee culture in the books and in the apiary; so I was convinced that, if I resided outside of a city, I could easily live and sustain my family on the product of the bee business.

The friend, a Frenchman, who had given me some information about this country, and to whose home I came, had four or five colonies of bees in box hives. One of these hives was immense, made of lumber 18 inches wide and 2 feet high. The combs were prevented from breaking down by two sticks intersecting one another. To take out the surplus the board of the top was unnailed, and the honey was cut out after sending the bees below with smoke.

My friend had begun by buying this large hive, and had from it a crop of honey every year.

The number of bees in this hive was so large that you could see as many workers going out of it as out of the three or four other hives together.

I had already noticed the superiority of large hives in the old country, and my persuasion was enhanced by observations in other apiaries around me here. A few years later I went to the auction sale of a farmer, to buy a cow. There were also six different-sized box hives. It was in March. The temperature was cold, so I tapped every hive with my finger to know whether they were alive. The bees in five of these hives answered to my tapping, with a short trill; the other, which was very large, answered bo-o-o-m. I was fixed. I bought this large hive for \$7.00, but I did not care for the small ones, each of which was sold for three or four dollars.

At that time I was already transferring box hives into movable frames. This large hive, after having been transferred, gave me, the same season, 160 lbs. of comb honey, which was sold at 27 cents a pound in St. Louis. So this colony paid, in the same year, for the cow bought, \$35.00, and for itself. Of course, this colony had been transferred into a large (not Quinby but King) hive; for as I had to save every cent I could I had bought first the book of King, since its price was but 50 cents,

instead of \$1.25 or \$2.00, the prices of the books of Quinby and Langstroth.

But I had already enlarged the King hive to twelve frames instead of ten, to give enough space to the queen; for, after noticing the superiority of large hives, I had made an observatory hive, and noticed that a queen lays about six eggs per minute, 360 per hour, and 3600 in 10 hours, 75,000 in 21 days. A little later, after having bought the Quinby book I made some Quinby hives, enlarging them also.

These large hives gave me excellent results in comb honey, for the extractor was not in use yet. Besides, in the beginning extracted honey was difficult to sell, as it had to compete with glucose.

A bee-keeper, living not far from here, having been told by a neighbor that I had bees that



CHAS. DADANT.

gathered 100 lbs. or more per colony, answered that I was a braggart. His bees did not give him more than seven pounds per colony, on the average. Of course, he had small hives. I told my neighbor to invite this bee-keeper to come and see my bees. He came, and I have never seen a man more amazed than he when I raised the cap of one of my hives to show him three boxes full of honey piled upon one another. These boxes were six inches high, and of the size of the top of the hives. For years we raised comb honey in frames six inches high, joined together to make boxes, Adair fashion, with glasses at both ends, before using the extractor.

We now raise extracted honey only, not because we can not produce comb honey with our large hives, but because extracted honey does not need so much work as comb honey, and we have some other business on hand.

While the large ten-frame Quinby hive is our hobby, the favorite hive of Doolittle is the small nine-framer of the Gallup hive.

Let us suppose that Doolittle has a queen able to lay 3600 eggs per day in one of his nine-frame Gallup hives, of which no comb contains more than 4600 cells, or for the nine, 41,400 cells. Every one of these cells will be occupied by this prolific queen in less than twelve days. Then the queen, unable to find empty cells for nine days, will be dissatisfied and will excite her bees to swarm.

Of course Doolittle, who is always watching his sixty hives, will cage the queen for ten or twelve days, to punish her for doing her work too well; so by his method he increases his work, instead of taking advantage of the value of his best queens.

Let me add a few remarks: The nine Gallup frames, on which the colonies of Doolittle are confined, can not have 41,400 empty cells to be used by the queen, for the workers always take care of storing pollen and honey as near the brood as possible. Then if one of these nine combs is filled with vituals the queen will have but 37,400 cells, or room to lay but 1800 eggs per day instead of 3600; hence the population will be smaller yet.

Mr. Doolittle writes that the queens in his ten-frame Langstroth hives did not lay more than enough to fill nine Gallup combs. I think that the cause of so poor a laying was the small number of bees in the hives in early spring. A large population and a large provision before winter give a large stock of workers in spring; but these requisites are difficult to obtain with small hives.

"But," says our friend Hutchinson, "if your queens lay so many eggs they are soon overworked, and die." I can not see why our queens would die younger than those which are provided with small hives. The queens doesn't lay at will. The eggs come out when they are ripe, and the queen can not stop their exit.

If you drum a swarm from a box hive you can ascertain whether the queen is with the bees by putting a black cloth under the swarm. After two or three minutes, if the queen is with the swarm you will see, on the cloth, the eggs dropped by her, as she was unable to keep them; and not only these few eggs are lost, but during the twenty or twenty-five minutes of your drumming she lost her eggs, being unable to keep them or to deposit them in the cells, on account of the trouble caused by your drumming. It is the same when a queen goes from a comb to another in search of empty cells.

"But," adds Mr. Hutchinson, "Mr. Doolittle has experimented on the matter. A queen which had laid 5000 eggs per day, in the whole season, was unable to live more than one year."

This report of Mr. Doolittle's reminds me of the Englishman who, going from London to Paris, arrived by boat at Calais, before sunrise, and went directly to the stage coach going to Paris. In Calais he saw but one woman, and she was cross-eyed. Then he wrote in his diary: "In Calais the women are cross-eyed." We have never made experiments on one or two hives, for such experiments prove nothing, but on 30 or 40 of each

kind of hives during several years, to be sure of the result. If our queens were killed by overlaying, not in one but even in two years, we should lose on the 80 colonies at home more than three queens every month; and during the six months when there are no drones to mate the young queens, fifteen of our colonies would die every year; yet our winter losses, although we winter our bees on their summer stands, do not exceed two or three per cent on an average, in our home apiary. The death of a queen in winter is the death of the colony.

Although this winter was very hard on bees, my son wrote lately to the editor of the *American Bee Journal* (page 121, Feb. 15), "We have just had a good day for the bees. The colonies are strong. There is next to no loss," etc.

For twenty years or more we had a number of colonies in ten-frame Langstroth hives, in the same apiary, with about the same number in eleven frames, Quinby. We were then selling queens, and colonies of Italian bees, and our customers wanted mostly Langstroth hives; but the comparison, in the quantity of honey produced and in the losses in winter, was so unfavorable to the Langstroth hives that we transferred their bees to our large Quinby hives, and we have now these old hives rotting behind one of our shops. Their number will increase this summer; for when our friend Hambaugh went to California three years ago we bought of him his hives and fixtures, and left them on their place at Spring. We have there a good young man to take care of them. He wrote us lately:

Have lost 12 colonies—10 in Langstroth hives. All died with plenty of honey but two. The honey was too scattered.

Spring, Ill., Feb. 24.

We had there 80 colonies—50 in Quinby eleven-frame hives, and 30 in Langstroth ten-frames. So one-third of the colonies in Langstroth hives died, while only one in 25 in our large Quinbys died. Do you not think that such a comparison is in favor of the large Quinby-Dadant hive?

Of course, if our bees in Langstroth hives had been wintered in a cellar this loss would have been avoided; but how could we have a cellar in every one of our five outside apiaries? Besides, cellar wintering is not always successful. When we built our house we partitioned a part of the cellar to winter bees in it; yet we found it difficult to keep a uniform temperature in it during the whole winter, and we noticed also that the bees were not as healthy in spring as those wintered on their summer stands; so we resolved not to winter them any more in the cellar, and this wintering outside of our large hives gave us the best results.

Hamilton, Ill.

[Mr. Dadant is, if I am not mistaken, the oldest living veteran we now have in our ranks, among those who have been prominent before the bee-keeping world. According to Stenog, he will be 82 years old next May, and yet at this fourscore mark he is still vigorous in mind and body.]

The Dadants can point with pride to the fact that their assertions are not based on experiments conducted on a small scale, but upon the results of testing several large apiaries with large hives for a period of many years. We can not doubt their word that they have produced more honey in such hives. And then the elder Dadant says this experience of theirs is borne out by the bee-keepers of France, who are largely following the Dadant system. The results, then, summed up, seem to be little or no swarming, very few winter losses, and more honey. If these things are facts, and the Dadants say they are, I do not really see how argument can disprove it. From the standpoint of a supply manufacturer, wish that they were not right; but I get a good deal of solid comfort out of the notion, that almost amounts to a conviction, that two eight-frame hives will accomplish the same results, and yet permit of the advantage of handling large hives in halves rather than in a big unliftable whole. I say I get comfort out of the thought, notwithstanding a kind of lingering fear that those big brood-frames, with their cards of brood, may make a difference in actual results.—ED.]

SECTIONS WITHOUT SEPARATORS.

How to Produce Comb Honey Without Separators or Fences.

BY DR. C. C. MILLER.

I received a letter from W. B. Ranson, protesting in somewhat vigorous terms against the use of so much paraphernalia in working for comb honey, insisting that, if it was such a gain to allow free passage in supers by the use of fence separators, it would be a still greater gain to dispense altogether with separators, and that, if the same amount of brains that had been used in trying to decide just how such things should be made had been used in trying to find out how to get straight sections without any separators at all, we would now be further on than we are.

In support of his view, and drawing from his own experience, he wrote:

"In 1897 I ran for all comb honey, and used a few bait-sections, and no separators; when I cased up the honey I had 21 bulged sections to the 1000. In 1898, for the honey I have just finished casing I used bait-supers *full of old sections, with combs and honey*. This time I still used *no separators*; and had only 3 bulgers to the 1000. Now, doctor, if you will, next season take some T supers, fill them with sections *open all around* (four beeways), and leave out separators, and let the bees have free access from end to end and side to side, level up your hives nicely, and when the bees are working freely in bait-supers put those supers on; and if the honey-flow is on, the combs will be built straight and nice. The main point is to have the combs in all the sections built down at the same time, and this requires plenty of bees and something to work with."

As few as 3 or even as few as 21 bulgers to the thousand is more than I should expect to reach if I discarded separators, even with four beeways and every thing made level with a spirit-level, leaving it a question whether Mr. Ranson's locality and honey-flow might be entirely different from mine, or whether there was anything in his management that cut any figure in the case. A letter just received from him makes me believe that his management may have much, if not all, to do with it. I give his letter in full:

COMB HONEY AT SWARMING TIME.

Dr. C. C. Miller:—I promised you a letter on this subject, and state my practice as follows: I feed, unite, and encourage in every way, brood-rearing in early spring to get the bees to swarm early; and when they swarm I take out the queen and let her bees return; and in eight or ten days they swarm again, a mammoth swarm with virgin queen. Now this is my chance for big work in sections, so I take a hive with starters in brood-frames, or combs, if nice and white, and put on a queen-excluder; next put on a super with narrow starters; remove parent colony and place this hive in its place; take unfinished super from the parent, and place on top; put the guard over the entrance, and run the swarm in through the zinc; and if I find more than one queen on zinc, let only the *choice one* go in, and replace the guard *at once* to make sure only one queen gets in. Now take the combs from the parent, and brush all the bees off and out of the hive; let them also run in through the zinc, and take another lot of queens from the zinc, and let the guard remain, so as to keep out any queen that remains in the grass. Replace the combs of capped brood in the parent hive and close with wire cloth, and place it in some comfortable place to hatch out. If any of those combs have large healthy-looking queen-cells still unhatched, dequeen other colonies and hang said combs in. In 24 or 48 hours I repeat the brushing, and let the rest of the young bees go in; and if I want more queens I pick up the prettiest and put on those old combs with remaining bees to hatch. On the third day I remove the guard to let the queen mate.

Now I have a colony to fill the hive and two supers with bees, and by brushing young bees as before I can have them fill to the third and fourth super—no fear of swarming again; and if any honey is to be had, this is the colony to find it. It is fun to see all the combs in sections built down at the same time, straight and nice; no need of separators. I learn from the bees that no colony in which a cell hatches out a queen, and she takes her flight, and returns, will swarm again *that year, no matter how populous*. Now stick a pin here; and, again, no swarm hived with a virgin queen will build a drone-cell that year.

Now you may set another peg. Therefore I work to get all swarms hived with virgins, and, as far as I can, have cells given in early spring to prevent swarming. Early fertile queens from the South in spring help to keep down swarming in part only; but the cell given in spring is effectual. Any unhatched

brood on hand by this practice is the best property to be had to build up weaklings, form nuclei, etc.

I am no literary man, and make no pretense to rhetoric, but a close hard worker in the bee-yard and workshop; and what little I know for *sure* is what the bees taught me, and much of that is to some extent at variance with what I read in some of the books; for instance, Prof. Cook's book taught putting supers $\frac{3}{8}$ in. above brood-frames, when the bees say, "If more than $\frac{7}{8}$ in. we will build in combs." Friend Doolittle, that veteran and esteemed teacher, never told us the $\frac{3}{8}$ -in. entrance is too small until the bees raised a fuss about it, then he said $\frac{1}{2}$ -in. was right; but my bees say one inch.

W. B. RANSON.

New River Depot, Va., Feb. 6.

There are points of excellence in this system of management that might well be considered by those so situated as to allow natural swarming. The gist of the affair is in keeping the whole force of the colony intact, thus having a powerful colony, and then avoiding the danger of such powerful colony swarming by having a young queen reared in the hive at or near the beginning of the harvest. Whether or not Mr. Ranson is correct, that no drone-cells will be built with such young queen, it is certain that the tendency toward building drone-cells will be thereby greatly lessened, and the strong force of bees crowding the supers makes a sure thing of pretty straight work in sections, whether separators are present or not. It is certainly an advantage to do without separators if they are not needed. Mr. Ranson does not specially dwell on the point that he secures very strong colonies, but it will be seen that that is an essential and very important part of his plan. He says he feeds, unites, and in every way encourages brood-rearing so as to get the colonies to swarm early, which is only another way of saying that he does all he can to get colonies strong, uniting those not otherwise strong enough.

His plan of getting all the bees into the swarm is radical. Brushing all the bees off the combs of the old hive, he closes the combs in the hive so no robbers can get in, and leaves the remainder of the brood to hatch out without any bees clustering on the comb. This, he says, is "in a comfortable place," which may be outdoors generally, but would need to be in some warmer place if nights were chilly.

Without any experience in the matter I should say that it is unnecessary to be at the trouble to have perforated zinc at the entrance to strain out the young queens; that there would be no danger of swarming, no matter how many young queens there were, and that the bees could be trusted to make the best selection, but it is possible that Mr. Ranson may have sufficient reason for the practice.

Marengo, Ill., Feb. 14.

[While I believe there is a good deal in Mr. Ranson's plan of working, yet there are very few, if I may judge by the past, who get any

thing like satisfactory results in securing comb honey without separators. We know that with honey-buyers and commission men (and it is certainly true in our own case) as a rule non-separator comb honey goes at a discount. In our own experience it has to be crated a good deal as it comes off the hive; for if two fat sections come together, then there is trouble. The fat one must be set aside until a lean one is found, then the two faces are put together.

Now, understand that I do not say that comb honey can not be produced, and very nice honey too, without separators; but I do know that *the average* bee-keeper does not succeed with it; and if I read correctly between the lines, Dr. Miller would not use it, even if he could do just as well as friend Ranson.—E.D.]

FORMING NUCLEI.

A New and Very Practical Method of Doing it; an Ingenious Scheme for Making the Bees Stay at Home.

BY W. W. SOMERFORD.

"Expansion," or how to increase with the greatest certainty of success with the least labor, is a problem that I have been reading about and experimenting on for more than a dozen years. I have read hundreds of articles on the subject, and have questioned many prominent bee-keepers minutely as to the best, surest, and easiest way to get increase. I was even told by Mr. A. W. Osburn, of steam-extractor fame, exactly the way he increased from 25 to 500 in Cuba, in one season; but as he had money behind the scheme, by the thousands, I consider it no very remarkable feat. I even believe it could be done here in the States with Miller feeders enough and the continual buying of feed in enormous quantities, so as to keep one on each hive well supplied with honey; for with plenty of feed, and by pouring it into the feeders at night, nice and warm, increase can be easily run geometrically. But the cash backing is what ninetenths haven't got; and if they did have, the honey that it would take to have those Miller feeders always plentifully supplied would cost so much that it would put a man to dreaming, and figuring to see if the bees couldn't be bought cheaper than the feed. So I'll come back to my way of increasing—"the poor man's way" in one sense of the word, and necessity's in the other; for bees are generally kept now in a number of apiaries, and consequently can not be tinkered with every day.

I now have six apiaries, and of necessity I had to invent a way of increasing rapidly and satisfactorily, with but little attention given to each division. To begin with, remove the queens or cage them in all of your fancy stock. After getting the brood-nest well filled with brood (the more brood the better—8 or 10 frames in a hive if possible) wait ten days after removing the queen, when the bees will generally have cells on each and every comb, and be in a broody or listless condition, waiting for cells to hatch. Dive, and remove the

frames quietly, giving each new hive two frames of brood and all adhering bees, and one good frame of honey, using it for a division-board (and, by the way, such division-boards are to my notion the best in the world); put the two frames of brood and bees next to the wall of the hive, and let the honey-frame be the third from the side of hive. Be sure to see that you have at least one good ripe-looking cell in each new hive, or division, and don't forget the frame of honey. As soon as each division is made, stop the entrance of the hive by stuffing it full of green moss. If you haven't any green moss, use green grass or leaves, and be sure to stuff them in tight—as tight as though you never intended the bees should gnaw out, and be sure there are no cracks or holes that a single bee could get out at; for if there are, your division will be ruined by all, or nearly all, the bees that can fly leaving it. Each parent colony should make four or five good divisions that will make booming colonies in 40 or 50 days, and I have had them the best in the apiary in less time. Leave or loose the old queen on the old stand (if not too old), and the bees from it will work straight ahead, as they don't have to be confined to make them stay at home.

Don't be uneasy about the divisions that are stopped up, unless you failed to stuff the entrances well, for they *will not* smother, but busy themselves with gnawing at the moss or grass for two or three days, possibly four or five, if you have done an extra good job at stuffing the entrance. At the end of that time you will find them all gnawed out so as to have egress and ingress. Then you can move enough of the grass or moss to give them a clean entrance, $1\frac{1}{2}$ or 2 inches wide; and by looking into them you will be astonished at the quantity of bees you have in each hive (and they, too, well satisfied), having consumed so much time in gnawing out that the queen had time to hatch and kill off her rivals and be ready for the wedding-trip by the time the entrance is cleared. So, instead of in a week's time, having a worthless weak division with a *chilled* inferior queen, as is the case in the old-style way of dividing, where nine-tenths of the bees return to the old hive, you have a strong vigorous queen and a nice little *satisfied* swarm of bees, ready for business in the way of pulling foundation before they are three weeks old.

I have succeeded with nineteen out of twenty divisions made in the above way, when I did not even see them until the third week after dividing them as above. And for the average bee-keeper who has out-apiaries I think there is no better way in the world to make increase. If there is I'd like to see or hear of it while the expansion question is being expanded.

In the above method of increasing, you have no queens to buy, no robbers to bother with, and but little time lost, as an expert can make 20 divisions an hour.

Navasota, Texas, Feb. 26.

[I do not know that I have seen this plan mentioned, for making bees stay in the hive—

a plan whereby the whole thing works automatically. It is new, and I believe it is ingenious. It certainly commends itself as being practical.—Ed.]

CUBAN HONEY.

It will Never be a Competitor of American Honey, and Why.

BY FRED L. CRAYCRAFT.

As the pages of GLEANINGS are often favored with something about Cuba it seems that interest in the apicultural future of this island is reviving; and now that we are gathered under the coat-tails of Uncle Sam it does not seem as if we are so far out of the world after all, and it is now time that Cuba should step forth and take her place among the honey-producing countries of the world, not only as to quantity but quality, in which she should lead the world. However, I think the fears of some of the fraternity are unfounded if they think that Cuba will flood the markets; for even if the duty of 20 cents per gallon were taken off there would be but little of it shipped to the United States, for the simple reason that we can get more for it in the markets of Europe. Of course, the white honey from the bellflower, neatly put up, either extracted or comb, would be a dangerous competitor if enough were produced; but Cuba will never have many Doolittles, Roots, and Hetheringtons; and if they were here they would find so many things to turn their attention to that they would not devote their time strictly to apiculture. I may be mistaken; but I think if A. I. were here and should go out to see the sun rise on New Year's morning he would walk right by where his bees were tumbling over each other in their haste to get out and get their backs all white digging their heads into the bellflower blossoms, and go and look at his coffee or pineapple patch, and pull some roasting ears for dinner, or perhaps carry in a watermelon before the sun warmed things up. The soil is very productive, and all fruits and vegetables known to the temperate climes as well as the tropics do well; and on account of the mild climate of this country, when one sets out a plant or tree he may feel sure of seeing it bear fruit.

During the recent disastrous cold wave which swept over the southern part of the United States we experienced the coldest weather I have seen during a seven years' residence on the island; but at no time did I see the thermometer drop below 52°.

There are many things to which one may turn his attention; but fruit-growing is destined to take the front rank.

There are also many disadvantages to one coming here; and, first of all, I do not think this is a poor man's country for a while, at least, and no one should think of coming unless he has enough to buy a place and carry him through his "tenderfoot" experience.

Politically this country has shown about every phase except liberty and good government; and if the pessimists of the United

States could have lived here a few years they could better appreciate the blessing of living under the best government on earth. The dawn of a new day is bursting forth at last; and under the tutelage of Uncle Sam, little Miss Cuba will in time grow up to be an accomplished young lady—not that Americans should expect too much from Cuba, for it must be remembered that the people have been under a government that has done all it could to debase them.

The present honey season is now drawing to a close, and, according to reports from what few apiaries are left, it has been a very good one, there having been very few days so cool that it interfered with honey-gathering.

Havana, Cuba.

[Nearly two years ago a report went abroad through the daily papers, to the effect that Fred L. Craycraft, an American citizen, had been struck down by some Spanish guerrillas; that his wife had been killed, with all his servants, and that his ranch had been destroyed. At the time there was no means for verifying the statement, but we gave it to our readers for what it was worth. Some months later, Mr. Craycraft unexpectedly called upon us, shortly before the outbreak of the Spanish-American war. He had come home to recuperate, and at the same time make some arrangements with a New York daily for which he was acting as special correspondent. After this he expected to go back to Cuba.

The simple facts in the incident related above were these: He had charge of a large ranch. A company of Spanish cavalymen raided the place, killed and robbed people, and destroyed every thing they could find on the ranch. Mr. Craycraft, last of all, was requested to step outside of the inclosure. He knew well what that meant, for the Spaniards simply desired to get him at a point of range where they would not kill any of their own company in shooting him down. In self-defense he held up his United States papers, showing that he was an American citizen; but this so enraged the captain that he drew his sword and struck Mr. Craycraft on the shoulder, knocking him down, inflicting a bad flesh wound. But Mr. Craycraft, knowing full well the Spaniard, quickly arose to his feet, and offered him a hundred dollars if he would save his life. To this his would-be slayer agreed; but when Mr. C. produced the money the treacherous captain demanded to know where the rest was secreted, on pain of death. Our friend Fred, realizing that the money could be of no use to him dead, yielded, though he suspected further treachery; but fortunately this last saved him.

The story about Mr. Craycraft having a wife and owning a ranch was all a hoax.

I had many an interesting chat with Mr. Craycraft, for we went together to Buffalo. At a hotel in Cleveland he showed me letters of introduction from such distinguished persons as Gen. Gomez, Gen. Garcia, and Gen. Maceo. These letters spoke very highly of Mr. Craycraft, and testified particularly to the point that he was thoroughly reliable, and working

in the cause of liberty. He had also letters of introduction from our consul General Lee.

Said I, "What do you do with these papers when you are inside of the Spanish lines?"

"Oh! I may have them ironed into my shirt-front. At all events, I have them stowed away where no one will ever find them."

"Have you been searched?" I asked.

"Yes, several times," he answered.

"Some time you'll be discovered; then what?"

"Then I'll have to take the consequences."

"What will that be?"

"Oh, I suppose the machete."

At the time, Mr. Craycraft desired that all of this should be kept strictly secret; for if the fact should have leaked out *then* it would have utterly destroyed his chances for doing some secret work which he expected to do when he went back.

Mr. Craycraft also had passes from the Spanish generals; in fact, he seemed to be a privileged character on both sides. Among other things he was assigned the important duty of conducting Senator Money through the Spanish lines into those sections of the country held by the insurgents, a task which he performed with tact and ability. Of his skill on this occasion the senator spoke in the highest terms.

You may wonder why I have so much to say about it. Simply this: Fred L. Craycraft was one of the Juveniles who, years ago, wrote for JUVENILE GLEANINGS. In fact, he grew up with the paper until it blossomed into the semi-monthly GLEANINGS. He has kept more or less in touch with us all these years, and, as our older readers will remember, he has been, during all this time, an occasional correspondent, part of the time from Florida and a part from Cuba. I know the readers of GLEANINGS will be interested in knowing that a member of our fraternity has rendered such distinguished services in the cause of freedom—yes, has been in the employ of Uncle Sam; has piloted distinguished persons through lines that no one else could pass.

When I last saw Mr. Craycraft at Buffalo I said to him, "You are about to go back into a very perilous work."

"I know it," he said; "but I believe it is my duty."

"I may never see you again," I said, "but I should much like to hear from you."

With this I bade him good-by and God-speed. As the war went on I often wondered whether he was still living, and at its close I tried to learn his whereabouts. I directed my letters to several points, and each time the letter would be returned. Beginning to think he had been killed, I tried once more, and this time I reached him. In this last letter I requested him to tell us something of his scout experiences; but he very modestly declined to say any thing about it, adding that he did not think it would be interesting; but he did send an article which I take pleasure in giving to our readers. It contains one interesting sentence, to the effect that Cuban honey, even if the duty were removed, would probably never be a competitor of American honey.

Mr. Craycraft is a man who knows as much as or more than any other bee-keeper on the island, in regard to the matter of honey. I am sure his letter will be read with interest.—Ed.]

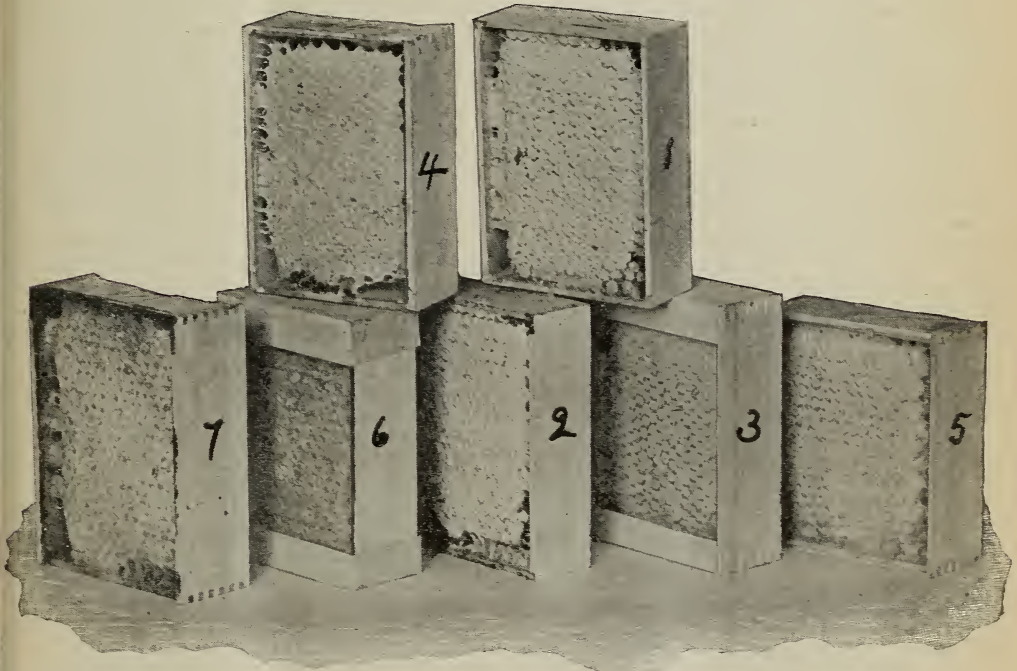
TALL VS. SQUARE SECTIONS.

From the Standpoint of a New York Commission House; "Tall Plain Sections Come to Stay;" a Valuable Article.

BY H. SEGELKEN.

Mr. Root:—We have noticed in GLEANINGS of late several interesting articles pertaining to the tall vs. square section, and we should like to say a few words from *our* standpoint, that of distributors.

We handle, perhaps, a larger variety of styles of comb honey than any other market, as we have a good demand for glassed sections, a good demand for unglassed, and a fair demand for paper cartons; and a one-piece section, for instance, would not be desirable for glassing. For unglassed honey (strip of glass on side of crate, sections not glassed) we decidedly prefer samples No. 1 and No. 2, the new-style plain section, one-piece. Sample No. 1 is $5 \times 3\frac{5}{8} \times 1\frac{1}{2}$, and sample No. 2 is $5 \times 4 \times 1\frac{3}{8}$. This is the first season we have had any of these sections, and we consider them the best that have been put on the market up to this time. There is something neat about them, which catches the eye. Perhaps it is that they have no beespace, or beeway (projection on the side), which makes the comb look so much fuller.



THE SEVERAL STYLES OF HONEY BEST SUITED FOR THE NEW YORK MARKETS.

It is our opinion that the square sections, $4\frac{1}{4} \times 4\frac{1}{4}$, have seen their day. The tall wide section will dominate, and eventually drive the square section out of use just the same as the square section drove the old 2-lb. frames out of existence years ago. This may not occur all at once, but it is bound to come in course of time. When eminent producers are about to adopt the tall wide section they certainly know what they are about, and they would not make the change for the fun of the thing nor as an experiment. We handled several varieties of tall sections the past season, samples of which we had photographed, of which we send you copies, and to which we will refer.

They look larger, and seem to contain more honey, and sell more readily than any other.

As to a choice between these two styles, we are in favor of the No. 2, $5 \times 4 \times 1\frac{3}{8}$, because the $\frac{1}{8}$ inch it is wider makes it look so much larger from the front, as the pictures will plainly show.

Sample No. 3, dovetailed section, $5 \times 3\frac{1}{2} \times 1\frac{1}{2}$, we consider the most desirable for a glassed section. The glass fits exactly in the beeway, making the comb even all around, and the paper around the top and bottom holds the glass better than glue or tin tips, besides covering empty cells, if there are any, making the package as a whole as neat as any thing that could be found. Mr. J. E.

Crane says, on page 126, GLEANINGS, Feb. 15, of the middle section, which he purchased in Washington, D. C., and which is poorly filled on the sides, that probably the section is too narrow to suit the bees. His section is $3\frac{3}{8}$, and the section we have is but $3\frac{1}{2}$, and plump full all around. We did not pick out the best comb, but the whole shipment of this lot was well filled all the way through, and this shipment had about 1000 crates.

Sample No. 4, one-piece, $5 \times 3\frac{1}{2} \times 1\frac{3}{8}$. This section is glassed, the glass glued to the section—any thing but a neat job, and we therefore can not recommend it for a glassed section.

Sample No. 5, dovetailed, $4\frac{1}{2} \times 4 \times 1\frac{3}{8}$, with bee-space. This section is glassed, fastened with tin tips—a good section for glassing, but small-looking alongside of the No. 3.

Sample No. 6, dovetailed, no bee-space, $5 \times 3\frac{3}{8} \times 1\frac{1}{2}$. This section is glassed, the paper holding the glass. We do not favor this style, as the glass lies outside of the section; besides, it is too heavy weight.

Sample No. 7, one-piece, bee-space, $5\frac{1}{4} \times 4 \times 1\frac{3}{8}$ —a large-looking section, but too heavy in weight.

While we are very much pleased with sections Nos. 1 and 2, we think there is still room for improvement; that is to say, the way *we* look at it, and we should like to offer this suggestion: Cut the sections down and make them still *thinner*. As they are now, they will weigh about an even pound, if well filled. The demand is for light weight sections weighing about 12 or 13 ounces. If $\frac{1}{8}$ or even $\frac{1}{4}$ inch were taken off from their thickness they would have just the right weight to suit the majority of the trade, and would sell still better. We have been told by prominent producers that a thin section, for instance $1\frac{1}{4}$ in., can be produced to as good advantage as a thicker section, and that the bees will work on them and fill them just as nicely, if not better. If this is true, there is no reason why bee-keepers should not adopt a light-weight section. We are referring principally to samples 1 and 2, for unglassed honey. The cry would probably be raised that it would be dishonest to produce a section weighing but 12 or 13 ounces, and sell them for a pound. Yes, if it were sold for a pound it would be dishonest; but how much honey is there sold yet by the pound? Go into any retail store where they have comb honey, and ask, "How much is honey a pound?" and nine times out of ten you will get the answer, "So much a piece or comb." Nearly all honey is sold by the comb, consequently there is no dishonesty.

Right here we desire to touch upon another point of selling; viz., selling honey by the crate instead of by the pound. We have this season bought and sold a large share of our receipts by the crate. As Mr. S. A. Niver, of Auburn, N. Y., says in his letter to us, he has been selling honey by the count for years, and finds it very satisfactory. So have we. And we also find that the trade prefers to buy by the crate. Selling by the count saves labor all around, producers included, as they would not need to weigh the honey. We think this

method has a good deal in its favor, and we should like to see it adopted generally. We may add that the honey should be graded properly, whether sold by the pound or crate. Nothing would be gained by filling the center of the crate with unfilled combs. It would sell for so much less per crate.

On the grading question we received a communication from Mr. Harry S. Howe and also one from Mr. Niver. Both favor the idea of having pictures of the combs of their respective grades in the market column, and these to be a standard for grading. Of course, the color or the quality can not be distinguished by the photos, and are not intended to be; but so far as unfilled cells are concerned we should certainly favor the idea. In this respect it would aid considerably in getting uniform grading. We wonder, however, whether this question will ever be settled satisfactorily all around. Of what use are the best methods or plans when there are bee-keepers who will not live up to them?

We said before, we had a good demand for glassed sections, a good demand for unglassed, and a fair demand for paper boxes. We do not wish to be misunderstood, and we repeat: For a glassed section, sample No. 3 is as desirable as any that could be had. When glassed, 25 combs weigh 23 to 24 lbs., which is light enough for glassed honey.

But those bee-keepers who market their honey unglassed should adopt samples 1 and 2, and cut them down $\frac{1}{8}$ to $\frac{1}{4}$ inch in thickness, and have a section which could not be surpassed. So long as light-weight sections have the call, why not give to the trade what it demands, when it can be done just as profitably as undesirable goods?

The *tall, wide, new plain section* has come to stay, and the sooner our bee keepers make themselves acquainted with this fact the better for them. The demand for honey in paper boxes has fallen off somewhat for the past two seasons, and unglassed has been in *better* demand than heretofore. Nearly all of our receipts of honey in paper boxes have been in the folding box. We have experienced some trouble this season with honey in this style. It appeared to be in good condition when it arrived, but in a few weeks the honey began to ooze through the paper box, and we found every box more or less saturated with honey, and sticking to the crate. We never recommended the folding box, as we do not consider it strong enough. If a paper box be used, it should be the heavy pasteboard box with separate bottom.

New York.

Mr. Root:—Just after we mailed our letter yesterday one of our out-of-town customers, who buys comb honey in round lots, came in, looking for plain sections, and felt quite disappointed that we had no more in stock.

Some time ago we sold him a lot of the tall sections, like sample No. 1, and he told us yesterday that at that time he was not in need of honey, but the combs looked so nice he was tempted to buy. When he received that lot he had quite a lot of the square sections in his

store, which he had bought previously. He put the two lots alongside of each other, and found that all the customers grabbed for the tall sections, as they looked so much larger and neater. He finally put the tall sections out of sight in the rear of his store, so he could get rid of the square ones. This is simply *one* illustration of how the trade and the consumer regard the new plain tall section.

[Indirectly I learned that Hildreth Bros. & Segelken had something to offer on the subject of tall sections, and I accordingly wrote to the firm, asking them to give their views on the tall section, not knowing at the time that they favored the plain section. I also asked them to have a photo taken at our expense, showing the different styles of section honey which, in their opinion, was most marketable. They wrote us that, as the season was a little late, they had difficulty in procuring even fair average samples, and what they had to show would perhaps be under the average. The picture shown herewith illustrates the samples that they were able to procure, and, of course, are not presented because they are ideal specimens, but because they serve to illustrate the facts set forth in the article.

What Hildreth Bros. & Segelken have to say regarding the plain sections simply goes to confirm what Mr. Crane has said regarding these goods in the New York markets; and it seems to me that any one who lets his conservatism get the better of him so far that he will not furnish these goods for market, will be the loser. No one can afford to let prejudice stand in the way of better profits; and if the plain-section outfit costs a little more at the start, it will more than make up for extra cost in the end.—ED.]

HAULING 5 TONS OF COMB HONEY 300 MILES THROUGH THE MOJAVE DESERT.

A Novel Method for Getting a Higher Price on Honey.

BY C. WINTER.

Having produced the above amount of honey in 1898 from 150 hives, and the best and only offer being 7½ cts. cash at depot here, I concluded that, after spending 3 months raising it, I could afford to spend a month or two selling it. An opportunity offering to take the honey at a low rate of freight to Los Angeles, I jumped the chances and went.

The front wagon was loaded with four tons; one foot of straw in the bottom, and straw packed solid on the sides, making a tight fit all around, with a good canvas on top to keep the sand and dust out. On the sides of this prairie schooner were two 50-gallon water-barrels. The second wagon was loaded with one ton of honey, 20 sacks of grain (feed for team), one ton of flour (freight for wagon station), our blankets, etc., and two 50-gallon water-barrels. The third wagon was loaded with two tons of baled alfalfa hay and more grain; 12 horses driven with a single line pulled the

outfit. The live freight, which in bad places in the road we unloaded, consisted of one teamster, one swamper, one passenger, and myself and a man who was "hoofing it" through the desert, and whom we picked up and gave a lift. As a side issue we had a two-horse team with cooking-outfit—mostly frying-pan and coffee-pot, presided over by four ladies, one man, and four children. We camped wherever night overtook us, carrying our own feed and water, and made the trip in four weeks.

Well, the honey rode all right on that "dead-ax wagon," over big boulders, through deep sand, down the San Franciscite Canyon, and up the Newhall grade, contrary to every prediction made by wise and old-time fogies; but it was fancy white honey—not a faulty section in the outfit. The driver understood his business; and when we reached Los Angeles, and saw fine white-sage comb honey (crop of 1897) in the show-windows at 10 cts. retail, we turned right around and sold, two days after arrival, one ton of our fancy water-white at the finest retail grocery in the city at 11 cts. spot cash. The homeward trip was made in a light rig in 6½ days.

Bishop, Cal., Jan. 30.

RAMBLE 164.

Bee-keeping on the Housetop.

BY RAMBLER.

Although it rained nearly all day Sunday I donned my mackintosh and attended church. I found that Roseburg has its full complement of little struggling churches. I have many times sadly considered the cranky ideas that hold the different sects apart, and see how hard it is for many of them to keep up respectable appearances. In a weak condition they are conducted with about half the zeal and vigor they should be. Why! it is just like dividing a rousing swarm of bees into a dozen nuclei just when the fields are white for the harvest, and expect them to secure a honey crop. If the dozen churches in Roseburg would unite in one rousing body I have no doubt they would be in a condition to soon cast a strong swarm and establish another church. Now, according to my notion, if the Universalists would be a little less cranky on the subject of tophet, the Adventists compromise a little on the seventh day, the Baptists revise their irrigation scheme, all the other isms ditto, and all come into the Congregational Church, what a happy condition of things that would be! * From the light

* Rambler's philosophizing on the need of uniting denominations struck a respondent cord in my make-up; but when he suggested that they should all be called "Congregationalists" I smiled out loud. When I was a boy we had a political meeting at the school-house, and there was strong talk of abandoning political parties entirely, and voting for good men. Somebody made a motion that, at least for the time being, and in our own locality, we let party drop entirely, and come together as friends and neighbors. This move had a hearty endorsement, and everybody began to look hopeful and happy. Finally a cranky fellow, who always got things wrong, and generally had more to say than anybody else, got up and mov-

attendance at church I should judge there was the usual number of sugar-and salt Christians in Roseburg, afraid of melting under the raindrops. But how quickly their fears of melting are banished when a comic show comes along! They get to the show, rain or shine.

Having a well-spent day to my credit I felt quite happy Monday morning in spite of fogs and mud; and thinking that I could be of no use to the bee-keepers of the vicinity I left town at 8:30 on the schoolma'am train for the north. Roseburg has a normal school, and is a sort of headquarters for teachers, and a bevy of them came aboard the train, each armed with a common nickel-plated alarm-clock. I had some curiosity to learn something about the clock; but the prim and severe aspect of the owners presented an insuperable obstacle to my investigations in that line. However, the train soon stopped at a cross-road where there was not a house in sight, and one schoolma'am and a clock marched out. Soon there was another stop at a farm-gate, and so it continued for half an hour until all the ma'ams and their clocks were disposed of. The last stop was near a schoolhouse, and the children came romping through the mist to meet their teacher; and as I saw the cordial greeting I thought that surely the life of a schoolma'am has more roses than thorns in its course.

The same agricultural and horticultural conditions hold good in Oregon that we find in Southern California. Districts have their own peculiarities. One district produces a

Calipooia Mountains, and we enter the great Willamette Valley. The towns become more numerous and larger, the fields broad and level, and devoted to the raising of grain, while some towns are a center for the lumber business, which is great in Oregon.

While passing through the hills another feature reminded me of the far East. The lovely autumn tints of the forest were in their most vivid colors. This coloring is wanting in our southland; and as it had been nearly eight years since I had seen such a glory of the hills I allowed my eyes and imagination to feast to the full.

In the soft light of an autumn day,

When Summer gathers up her robes of glory,
And like a dream of beauty glides away.

In this valley we also reach the land of the golden pheasant; and the first one I saw fly out of a grain-field reminded me of a stick of yellow pine stovewood with wings attached. While the bird does not show off well in flying in the distance, it is a beautiful creature when seen at rest in a cage or corral. They are becoming plentiful all through this country, and in the season when they are allowed to be hunted they make a good table bird.

This time my ride by rail took me 146 miles, and I stepped off the train at Salem, the capital of the State, a pretty city of about ten thousand inhabitants. I was extremely lucky again to get into a cosy, well-kept temperance hotel.

During my journey I had not seen any evidences of bee culture; and I judged, from the appearance of the Willamette Valley, that certain portions of it were not adapted to the profitable production of honey.

The next morning I donned my mackintosh and sallied out in the misty rain upon an exploring expedition for some Oregon honey. I soon found a nice exhibit in a neat glass case in a grocer's store, and which had all of the evidences of a careful bee-keeper, and I forthwith interviewed the grocer.

"I observe you have some nice honey here," said I; "is this a home product?"

"Yes, sir," said he; "that was left here by Dr. Chase, of this city. He is the best-posted bee-man in this portion of the State, and a very skillful manager of the busy bee."

"But," said I, "do you not sometimes handle California

honey?"

"No, sir, I do not," said he; "I want nothing to do with California honey. We always get it from dealers in San Francisco, and we grocers get imposed upon many times with adulterated goods; and a child that has been burned does not want to put his fingers in the fire again."

"Well," said I, "suppose an association of bee-keepers should send you some honey, and



GLIMPSE FROM A PRUNE ORCHARD.

certain kind of fruit in greater perfection than an adjoining district. We are now passing through the Umqua Valley, where the prune grows to perfection, and we pass extensive orchards.

From this valley our route takes us over the

ed that, when all party lines should be obliterated, the organization should be styled the "Republican party." This created a big laugh, but it had the effect of upsetting all that had been done, and each man went back to his old party line.—A. I. R.

guarantee its purity; would you not be willing to handle it?"

"That might be a different proposition," said he; "but there is so much adulteration practiced, and it is so easily done, that there would still be suspicion; but I am sure I should be willing to try to sell honey from such an association."

This is a fair sample of the way grocers all through this country talk and feel about California honey; and it seems to me that the only remedy is for bee-keepers to sell through an organization.

The grocer kindly stepped into the street, and pointed to the building where I would be apt to find the doctor, and I hastened in that direction, and was so fortunate as to find him in his office. I met a medium-sized spare man, about 70 years of age; hair, beard, and mustache plentifully sprinkled with white, and with a little black smoking-cap on his head. I introduced myself under my normal name, and proceeded to business.

The doctor has been interested in bees for several years, and sort o' stumbled into the business in an accidental way. The more he handled them the greater became his enthusiasm, and he gradually increased his number of colonies up to 100, and he also worked into a fine business in selling supplies.

In order to enlarge his business, and to avail himself of cheap water power to run his machinery, he moved to the town of Lincoln, a few miles from Salem.

His business started in well, and he sold a large number of hives and other supplies, and every thing seemed fair for an enlarging and prosperous business, when, like many another man, in a moment when least expected, disaster overtook him, and his plant was burned. Disasters hardly ever come singly, and soon after the fire a flood swept away a large amount of choice lumber in which his money was invested. At the end of these sad affairs he was almost impoverished, and with only a few colonies of bees left. He returned to the city, and has again taken up the practice of medicine; but through and above all of these discouragements the bee fever does not leave him. With his son, who is also interested in the bees, they are building up again, and now have about 40 colonies.

"Ah! yes," said Dr. Chase, with great depth of feeling, "the blessed bees, *blessed bees*, they have come to my aid and enabled myself and family to live when all else seemed a failure—blessed bees." Indeed, doubly blessed in his case.

"If you care to see some of my bees," said the doctor, "I have 20 colonies near us."

I signified my entire willingness to see the apiary, and the doctor led the way to a rear room. His office was upstairs, and from this rear room we could look out upon the roof of

a rear wing to the building. In both rear windows were hives of bees, and several hives on the roof beyond. He called this his Webfoot apiary, after the webfoot State of Oregon, you know. At about this time I had become quite enthused over the doctor's bee-keeping, for this was the first housetop city apiary that I had ever seen. I pulled from my pocket a tourist camera, and said, "If you have no objections, doctor, I should like to take a photo of your apiary."



AN APIARY ON THE HOUSETOP.

"Certainly," said he; and then, turning to me as though a new idea had struck him, he said, "Your name is—is—M—n; thunder and lightning! then you are the Rambler!"

"The same, at your service," said I, and proceeded to take the photo which I herewith present to your readers.

Some years ago the doctor served in the U. S. army as surgeon, and in his professional life he made a study of antiseptics. This habit he carried with him into the business of bee-keeping, and as a result he told me that he had discovered a remedy for foul brood.

"Why, doctor," said I, "if that is a fact you have made a great discovery, and a grateful fraternity of bee keepers will arise and bless you. But," said I, with something of a tone of doubt, "are you sure that you had a real case of foul brood?"

The doctor smiled as though it was presumption on my part to have the least doubt, and said, "I know too well the baleful effects of the disease; but I know I can cure it every time, no matter how virulent the case."

The doctor made no secret of the treatment, and it will be given in the next Ramble.

W. F. B., Ohio.—It is a little late in the season now (March 24) to move bees, especially in your locality. The moving should have been done late in the fall or very early in the spring. I think it would be advisable for you to leave your bees where they are for the present. If you desire to move them only a short distance, move them gradually—that is, only a few inches a day.



BROOD - COMBS FILLED WITH HONEY AND POLLEN.

Question.—Please answer the following in any bee-paper published in the English language, as we take them all. Here in Jamaica, just before the beginning of the main honey-flow, our bees fill up the brood-frames with honey and pollen. We take them out, putting in others, and these are filled. We know the queens to be good, young, and vigorous. We put supers on, but it does not help matters much. Whose fault is it — the bees', queen's, or ours?

Answer.—While this question comes from Jamaica, I thought it would not be out of place to answer it in these columns, as GLEANINGS not only has many subscribers there, but many of us here in the United States are troubled in a similar way with pollen, if not with honey. During the bloom of hard maple and the wild grape, I often have combs so filled with pollen that they seem almost useless, and others are bothered in the same way, some to an extent great enough so that I heard a man at a bee-convention once offer \$50 for a machine that would remove pollen from the combs without harming them. I used to remove these frames of pollen, as our questioner says he does, but instead of putting in empty combs I put in a dummy or division-board in place of the frames removed; and when the sections were on, this would throw a greater force of bees into the sections, and thus, as soon as any honey came from the fields, it would go into the sections, thus relieving the pressure of honey from the brood-combs. But later on I would simply shove these combs of pollen back toward the side of the hive, by removing an outside comb if necessary, and place a frame of comb foundation between the pollen and brood, and where honey enough was coming from the fields to cause them to draw out this foundation the queen would fill it with eggs before the cells were deep enough for the bees to do much work at storing either honey or pollen in them, and thus I had brood where I should get only pollen were I to give an empty comb in place of the foundation. There is always something about drawing out foundation or building comb that sets the queen to laying more vigorously than where no comb is built; and where combs can be drawn or built, there is usually no trouble in having them well filled with brood; and where young brood is maturing rapidly much pollen is used, thus keeping the combs from being overloaded with pollen, and rearing a lot of bees for the harvest. But with us, such yields of pollen rarely last more than a week or ten days, after which the bees generally are anxious for brood; and what appeared combs nearly spoiled because they were so full of pollen assumes a different aspect very soon; and by the time

the main honey-harvest arrives, there is little more pollen than is necessary in the hive.

Just why the queens do not breed when pollen comes in so abundantly is a mystery I have never been able to solve, though I have spent much thought and study on the subject. The nearest I can come to the matter is that, for some reason, the bees fail to feed the queen on the stimulating food usually given at all times when she is laying very prolifically, and all know she lays only as she is fed and cared for. When laying very prolifically we see bees offering the queen food every few minutes; but at these times when pollen is coming in so as to crowd the brood it is a rare thing that I see the bees feeding the queen. For this reason I should say that the fault lay in the bees more than in the questioner or the queen. If he can devise some plan or way whereby the bees can be caused to feed the queen abundantly at the time when his brood is being crowded with honey and pollen, he will have the key to the situation, and be enabled to turn these things to a good account as they are changed over into brood. It is possible that a little very thin or diluted sweet fed at such times would have the desired effect, if fed just at night, this causing the bees to feed the queen, as it generally does at all times when so fed. Were I to have another season when the combs are crowded with pollen I would try it and see what the result would be. There are times (when it is generally cool and stormy) when the bees will not feed the queen nor perfect any eggs into larvæ, no matter how hard you coax; and this time of pollen might prove like these; but I should sooner think otherwise.

SCHOLZ (OR GOOD) CANDY.

Question.—Jamaica, again, wants to know my treatment of a strong colony previous to giving the cell-cups, and also just how I make my candy for shipping queens, as only four out of the forty odd sent him last year arrived in any other than a good condition, and these four were fumigated to death in the mails, when the scare about the yellow fever was on. He says, "It would be dollars in our pockets if more of *your* queen-breeders knew how to make *Good* candy."

Answer.—A part of the time I buy this candy of The A. I. Root Co., and a part of the time I make it myself; and I do not know that there is any difference between that made by them and that made by myself, when first made. But with either, when shipping queens where they must go in hot weather, or go from our cool climate into a hot one, as in going to Jamaica or the Australian colonies, I take the candy and knead into it some very fine granulated sugar, to the amount of about one-sixth of its bulk, and this granulated sugar makes the candy "hold up" in place, no matter what the weather, while at the same time it does not take from its moisture.

To first make the candy I use good powdered sugar, setting it near the stove for four to six hours, till thoroughly warmed through, when some good thick extracted honey (of any kind which is wholesome to the bees) is

warmed till it feels quite warm to the hand. The two are now stirred together, adding sugar till it can be worked with the hands, when enough of the sugar is kneaded in till a loaf is formed which will stand up of its own accord without flattening down when placed on a flat surface. It is now set away in a warm room for a week or so, when it is ready for use, using granulated sugar, as above, when the weather is warm or the queens are to go to some climate where it is warmer than it is here. Before the granulated sugar is added, candy that will stand up nicely in a temperature of 75° will all go down and slowly run about if kept in a temperature of 100° for half a day. But after the granulated sugar is added it will hold its place, even when the temperature is above 100°. From what I have seen, I am convinced that more queens are lost when sent to a warm climate by the candy getting soft and daubing the bees than from all other causes put together, so it is well to guard this point as strongly as possible, for it is at best a hard jaunt for bees and queens to any of the foreign countries.

Regarding the preparing of a strong colony for queen-rearing, I gave all I wish to say in an article published in GLEANINGS the first of this year. I could not make it any plainer were I to try again.



THOSE HONEY-LEAFLETS ALL RIGHT; HOW THEY MAY BE MADE USEFUL.

They are all right! What's all right? Why, those honey-leaflets you were inquiring about. They are similar to a mustard plaster—the effect of them is according to how applied. They answer the 101 questions that every honey-peddler is asked at every door. Time is money. Have your name and address on them, so they will know where to send an order if desired. Every peddler of extracted honey is eyed with suspicion, especially by strangers.

Politeness should always precede the leaflets. As the lady opens the door tell her you have called to sell her a pail of as fine honey as she ever saw (never try to get a new customer with anything but an A No. 1 article). Of course you will hear a lingo of questions about strained honey and sugar until one would imagine the regulator of a talking machine had given way.

Hand her a leaflet, naming some of its principal points, such as kinds of honey, care of honey, and the recipes, with a strong invitation to read it, as you have them printed for the benefit of your customers; also saying that you are trying to start a trade in that vicinity, and will sell her a pail on trial. If it is not satisfactory she may drop you a line and you will return the money and take what is left of the honey.

Of course, there are some where the honey may be left on trial without pay, and some where you should tell them you would return the money for the honey left. Common sense comes good every day.

Every package of honey should have the producer's name attached to it (excepting the poorer grades). The leaflets are not as costly as labels, and are 16 to 1 better. When a customer buys a pail of honey at the store and gets a leaflet it will be read, for it explains 101 things, as I have said before. They will inquire for that man's honey; the storekeeper will buy that man's honey; and if you are that man, place a horseshoe over your door, as good luck is yours.

Those leaflets, if not properly used, are like a little story I read. An old woman who lived in poverty had a son who dwelt in luxury. A friend asked if her son ever sent her anything. "Oh, yes! he sends me a picture every little while;" and the old woman brought out from its place of safety a box containing the pictures which her son sent, which placed the old lady in joy, for they were \$100 checks, but she never knew their value before.

If the columns of GLEANINGS are yet ajar to articles on facing honey I wish to say I always have been an advocate of facing our produce, but in such a manner that we could face our customers after the sale.

Please tell E. E. Hasty that I well remember his writings in the '80's, and one of the relics of my shop is a hive-balance described by him in GLEANINGS, Sept., 1880.

Mohawk, N. Y.

C. R. MORTS.

NO QUESTION BUT THAT THEY DO GOOD.

I am at a loss to understand how there can be any difference of opinion in regard to the value of the honey-leaflets. Manufacturers and producers in almost every line of business expend large sums of money in setting before the public the merits of their products by means of handbills and circulars of every description. There must be a great waste here if all this has no effect. Fully half the customers to whom I have handed a leaflet along with the honey have asked, "What's this?" looked at the heading, and have been well along in the reading-matter before I left. There is no question that, if they are read, they must do some good, for the majority of people living in large towns and cities are not very well informed in regard to honey and its production—one fact which I think accounts for the idea so many people have that most honey on the market is artificial or adulterated, when, in fact, there is very little adulterated honey to be found nowadays; and I might suggest, as a means of educating the people a little more in this direction, that a few statistics on the production of honey in this country would be a good idea in getting up these circulars.

I am often asked the question, "Where do you get so much honey? I thought the production of honey was a lost art in this country." They do not know that the amount produced in 1890 was sixty-five million pounds, and has since largely increased.

The recipes for the use of honey as food and in medicine are, I think, the most valuable feature of these leaflets. In fact, I thought they were of such value that I selected the best of them and had them printed upon the label on the can. We sell mostly extracted honey, so that if the leaflets themselves were destroyed they could be referred to at any time. Quite a number of families do not care for honey as a spread, but use it for cooking purposes and in medicine, and any thing that serves to call their attention to the use of honey in this way is just so many more customers gained.

E. Z. BUCHANAN.

Allegheny, Pa., Feb. 27.

HOW TO MAKE THOSE LEAFLETS A SUCCESS.

I guess I have said as many good things about them as any one; and before you dump them into the waste-basket lay some away for me to use; for if I ever get any more good crops of honey I shall *certainly* want them. Now, then, Mr. Editor, you want our views. Should the leaflet be more expensive? I might suggest one verse or a few lines added for the *express* purpose of cutting out and pasting in our hats. I should want it to read something like this: "Don't waste these leaflets, throwing them on porches, and scattering them around promiscuously. Don't use these leaflets if your honey is not of good quality and *thoroughly* ripened before it was extracted. Don't forget, when you do make a sale of *good* honey, to hand the customers a leaflet. Don't forget to tell them that it will teach them how to warm up candied honey; it will educate them quite a little. Don't forget that very *few* are educated about honey and bees. Don't forget that half the people hardly know what honey is. They should and will if we do our part well. Those leaflets will help do the talking. Don't forget to leave a sample of honey when you call from house to house. Don't forget to leave the leaflet and your name and address, because, after they eat the *good* honey, they will read the leaflet and then say, *I must* get some of that honey."

Don't you see we almost compel them to read those leaflets, and also buy our honey? Don't forget to stay at home, though, if your honey happens to be a little off—so much so that your own family don't like it. Don't forget that poor honey sells poorly, just the same as any other poor thing. Don't forget those leaflets are all right if you know how to use them rightly. Don't forget to take off your hat every few days and read these *don't's*. Don't forget that, if the leaflets are all right in one place, they *must* be so in other places.

New London, O., Feb. 7. DAN WHITE.

NO SALES FROM HONEY-LEAFLETS.

On page 19 Henry Wilson, of Clinton, Ill., gives an unfavorable report of the honey-leaflets as an advertising medium for selling honey. Since the editor says, "Let's hear from others," I will testify. On August 3, 1897, I ordered from you 500 leaflets, which were forwarded to my address, and I began distributing them among my neighbors and

friends at once; and as my correspondence is somewhat extensive I usually made it a point to put one in every letter I mailed. The results have been watched with anxiety, but I have failed to notice a single pound of honey sold under the direct influence of the leaflets. My mode of advertising honey is, let them taste it.

M. N. SIMON.

Bloomdale, O., Jan. 4.

THAT MORTON SWARM-CATCHER; CORRECTIONS FROM NIVER.

The last GLEANINGS, containing your writing-up of the swarm-catcher, calls for a word or two from devotedly thine.

Firstly. You have no cause to grumble at my "five feet four." That elevation is a birth-day present to me. See?

Nextly. Your drawing of the extension-pole is wrong at the top. The basket must be swung from forks, so it will keep right side up with care.

Once more. There is *another* pole necessary (or convenient) to go with the outfit. That is a 16-foot pole with a hook at the end, to shake the limb as you hold the basket under the swarm. After the main part of the swarm is in the basket, and lowered by means of the rope and pulleys, there is quite a per cent of them flying that will go back to the limb, many times calling the rest after them. But if you keep up a shaking of the limb with the pole they settle on the basket; and when quietly settled—never before—should be taken to the proper hive and "run in."

And again. That basket is fastened to the extension by means of a galvanized-iron socket which is part of the forks aforesaid, and can be slipped off when lowered within reach, leaving nothing but basket and forks (with socket for a handle) to tote off to the stand. I was going to improve this *shaking* pole by making it in two sections of 12 feet each, so as to fit all cases.

S. A. NIVER.

Auburn, N. Y.

TRAVEL-STAIN; A FEW MORE INTERESTING FACTS.

Friend Root.—I hardly need tell you I was much interested in the articles with criticisms on "travel-stain." While I see as yet no reason for changing my views on the subject, yet I feel that a free discussion is or will be helpful to a full and complete understanding of the subject. At the recent meeting of our State Bee-keepers' Association Mr. W. G. Larabee made the statement that, in the use of combs in an extra super for extracting, he had found that, where he used old combs in which young bees had been reared, the cappings of such combs were travel-stained; but in new combs, or combs that had not been used for brood-rearing, the cappings were white. A statement was also made by Mr. V. V. Forbes, a very candid man, that, where he had cut down old comb, and the bees had built out new, the part nearest the old comb was darkest, and the color changed to nearly or quite white at the edge furthest from the old comb.

Another fact in regard to the filling of boxes was brought out by R. H. Holmes, one of the most careful and conscientious beekeepers of Vermont. He stated that he had had small sections filled as perfectly as he had ever had those that were larger. Some of the finest honey he had ever produced was in sections $4\frac{1}{4} \times 3\frac{1}{8} \times 1\frac{1}{2}$, and would weigh just $\frac{1}{2}$ lb. This would quite contradict what I thought was the reason for the imperfect filling of those I saw in New York and Washington; but I believe it much more important that we get at the truth than that any theory of mine should be proved correct. I hope that, before we are much older, we may know more about it.

J. E. CRANE.

Middlebury, Vt., Mar. 7.

PROSPECTS DISCOURAGING IN THE EXTREME IN SOUTHERN CALIFORNIA.

From present indications this year seems destined to be one of the most trying that the various industries of the southern portion of this State have ever encountered. The bee interests in particular will suffer to such an extent that it will force many to seek other fields or means of making a livelihood. The present estimate places the loss of bees last year at 50 per cent, so you see that a further loss at the same rate would almost destroy the few remaining. The pitiable condition of the ranchers who are dependent entirely on the annual rainfall is beyond comprehension, and, as a result, many a man will suffer for the actual necessities of life.

G. W. BRODBECK.

Los Angeles, Cal., March 7.

PREPARING TWO-STORY HIVES FOR WINTER; TRANSFERRING, ETC.

1. How would you prepare double-deck eight-frame hives for cellar wintering?

2. In transferring from various styles of movable-frame hives to eight-frame D. hive, by Heddon process, when would you do it? Our main honey-flow is from clover and basswood (fall flow usually very light) but we have much raspberry forage, usually getting some swarms therefrom.

3. In transferring, would you drive bees up into a hiving-box, or take out old frames and shake them down in front of new hives? I wish to increase stock by a second "drive" later.

4. Can Mr. Geo. E. Hilton tell us, through GLEANINGS, how he gets his bees ready for the raspberry honey-harvest?

Cedar Falls, Ia., Jan. 28. J. D. BIXBY.

[1. I would not try to put two-story hives in the cellar. A colony can usually be crowded into one story late in the fall or about the time the bees are put into the cellar.

2. By the Heddon method you can transfer at any time, although if I had to transfer some time during the season I would do it either in the early spring or after the honey harvest. Spring is to be preferred, for then you will be enabled to use modern comb-honey supers.

3. I would do both ways; but generally I would shake the bees in front of new hives.

4. Hon. Geo. E. Hilton is respectfully requested to give the desired information.—ED.]

HOW DID THAT WORKER BROOD GET THERE?

Dr. Wm. S. Adams, of Guys, Md., sends me the particulars of a very unusual case, and asks for an explanation. It seems on first reading that there must be some mistake; but that can hardly be, every thing being given with such circumstantiality of detail from notes taken on the spot.

An examination of his colonies April 15 showed brood in two or three frames in each colony, a few colonies having brood in the fourth frame. One colony had a sprinkling of brood scattered throughout five of its frames, showing that it was unusually strong; and the brood being in worker cells, and capped over with raised cappings, showed clearly that it was the work either of laying workers or a drone-laying queen. It was not opened again until 25 days later, May 10. On that date were still found raised cappings as before; but in one frame, a little below the center, was found a solid patch of sealed worker brood, regular oval, about two inches in diameter, and in the center of the patch a well-formed sealed queen-cell! On either side of this frame was added a frame of emerging worker brood, and in due time the young queen left her cell, was fertilized, and built up a fairly strong colony.

Now, how did that patch of worker brood get there? One explanation might be that a comb with a patch of eggs or brood had been put there and forgotten. But that explanation is ruled out when the doctor tells us that in the same frame were scattered cells of the laying workers' work, and it is further ruled out by the information that the doctor's health was such that he did not touch the hives during the preceding 24 days. A played-out queen might lay a few eggs from which workers or queens might be reared, but in that case some sealed worker brood ought to have been seen April 15. Moreover, a queen so nearly played out that she laid only a few worker eggs would have those few well scattered, and not in a compact patch. It's asking too much to ask us to believe that the bees brought the eggs or larvae from some other hive. The only reasonable guess I can think of is that by some means a laying queen from some other hive, possibly one that swarmed out in the excitement of a spring flight, entered the hive, and was tolerated long enough to lay the patch of eggs. If any one has a better explanation, I don't insist that mine is the right one.

Marengo, Ill.

C. C. MILLER.

WATER-SOAKED COMB HONEY; ITS CAUSE.

By the way, I do not remember ever seeing any thing in GLEANINGS in regard to no air-space between cap and honey, made by hybrids. At least one-half or two-thirds of all my honey this year had no air-space between cap and honey. The capping was flat on hon-

ey—just as when you press on honey with your hand. The honey looks wet—is that way when on the hive. It looks very badly, and hurts the sale of it. Has this been written about?
G. F. AYRES.

Atherton, Ind., Jan. 23.

[I do not know that hybrids are any more inclined to make cappings of their honey come in actual contact with the honey itself. We have always supposed that black bees make the whitest comb honey, for the reason that the cappings do not touch the honey itself; that hybrids, from the fact that they were half-bloods, were next best, and Italians third. But usually there is very little difference in the comb honey produced by any of the bees. The season and its attendant condition has more to do with it. When there is a moderate flow, I have noticed that comb honey is more apt to look water-soaked than when the flow is rapid. During the last season there was more so-called water-soaked honey on the market than during any other year I have ever known, and I attribute it to the fact that the season was poor and backward, and that honey had to be necessarily left on the hive for a considerable length of time. This water-soaked appearance may be partly due to so-called travel-stain; but more often because there are no air-gaps between the cappings and the honey.—ED.]

LOGWOOD HONEY FROM THE ISLAND OF JAMAICA.

The honey-flow has started, and is immense. We are extracting rapidly, and the honey is of the very highest grade—equal, we think, to your basswood honey of which we see so much mention made in GLEANINGS. The present flow is from the logwood, and we intend to send you three sections soon, as a sample, which will, we think, satisfy you that West-Indian honey is sometimes as good as the Northern article.
HOOVER BROS.

Kingston, Jamaica, Jan. 24.

[The three sections mentioned above are at hand. In looks it certainly would compare favorably with any thing we can produce here in America. On breaking the comb we find the honey very thick, of a beautiful crystalline light amber; and when one tastes it he utters an exclamation of surprise and pleasure—at least I did. The logwood honey is unlike any thing else. The flavor is peculiar, suggesting something between violets and geraniums—at least the honey seems to taste somewhat as violets and geraniums smell; and yet the distinctive flavor is not strong enough so one would be likely to tire of it. My impression is, that if this honey were on sale in some of the cities, and if customers were allowed to get a taste of it, it would all go off at fancy prices. Not everybody may think as much of it as I do; but if all logwood honey is like the sample sent us I predict it will rank side by side with the choicest products of the world—mountain sage, honey of Hymettus, or any of the clovers. I hope the Hooper Bros. will be able to ship us some extracted logwood honey; and if they can manage to make it

come this long distance without being damaged in transit we should like some of the comb honey also.—A. I. R.]

DO BEES LIVE AFTER STINGING?

In *Stray Straws* for Nov. 1, p. 790, there is a note that the loss of the sting of a bee does not necessarily prove fatal to it. I do not wish to set myself up for authority on the subject, but I will relate a little experience I have had in that line.

Sept. 7 I had a horse stung so badly by bees that it died. I was somewhat interested, and watched to see what hive or hives the bees came from; but I could not see any dead bees around any of the hives—that is to say, more than usual.

Wishing to experiment a little, and to find, if possible, the cause of death of the horse, on the 12th of September I procured an old horse and a swarm of black bees in an old box hive, and let the horse and the bees become well acquainted with each other. In fact, I placed the hive so that the horse tipped it over. I let the bees sting him for about twenty minutes. I expected to find a large number of dead bees, but I did not. I did not look to see if the bees that were left had lost their stings, but I was astonished not to find more dead bees.

The colony did so well that, in the last week of September, I transferred them. When I packed them for winter they were a fairly strong colony, and I wondered what became of the bees that stung the horse, for it did not seem possible to me at the time that they could have built up to the numbers they were after the depletion there ought to have been if those that stung the horse had died.

GEORGE L. VINAL.

Charlton City, Mass., Dec. 1.

TRAVEL-STAINS.

I do not wish to prolong this discussion, but I should like to suggest some facts that seem to conflict with Mr. Manum's position, or entirely disprove the soundness of it. I presume that every one who has placed an empty frame between two frames of old dark-colored brood-comb has seen quite dark-colored new comb built in that frame. I have seen it, when first started, nearly as dark as the old combs. I have seen a whole frame filled with dark new comb, differing in degrees of color. Can any one deny that old wax was used in making this comb? I will not affirm, as Mr. Manum puts it, that the "bees made use of it for the purpose of economy" (italics mine); but it is certain that the bees used some kind of colored foreign substance—it may be only old wax in this case—and incorporated it in this new comb. Why they did it I will not pretend to say. Again, if the bees carry in so much coloring-matter on their feet and bodies as to color the wax of the cappings, is it not reasonable to suppose that some of this coloring-matter would sometimes get mixed up with the wax in the very new combs built for honey? But we know that it does not. Bees begin putting honey in this new comb some-

times when the cells are not much over a quarter of an inch deep, and the lengthening of the cells and filling them with honey goes on at one and the same time; and there must be a great deal of travel over these new white combs; but we never see them travel-stained or pollen-stained, even when there may be some pollen in the bottom of the cell.

Referring to your experiments with gasoline, you say it dissolves and gradually absorbs the wax. I would suggest that the gasoline may dissolve the wax without dissolving the coloring-matter or absorbing it, and it is still left to show on the cappings. I have no theory to uphold in this matter, but only wish to get at the truth.

THADDEUS SMITH.

Pelée Island, Ont., Mar. 13.

ONE THOUSAND MILES ON A BICYCLE IN CALIFORNIA; RAMBLER'S WRITINGS.

The drouth still holds a firm grip on California, with only about three inches of rain in the southern counties, and about seven inches in this part of the State. There have been no indications of rain this month, and the prospect for bee-keepers is very poor at present.

We find our bicycles a great help to us in seeing this country. In California the railroads, steamships, ferries, and some street-cars to suburban towns, carry them free of charge, and have never injured ours in any way. We brought them to California free as baggage, cased. My cyclometer now shows that my wheel has carried me one thousand miles in this State.

I have found that, of all my previous information in regard to California from various sources, the impressions obtained from the writings of J. H. Martin, in GLEANINGS, were the most correct. I consider his Rambles, as published in GLEANINGS during the past six or eight years, not only very pleasant and interesting reading, but also excellent in description on account of his peculiar style of giving a correct impression of life and customs with his descriptions of various locations.

This has been an excellent winter for traveling in California, and my wife and I have enjoyed outdoor life almost every day. We will now visit Salt Lake City and Denver a few weeks, then return home.

FRANK MCNAV.

San Francisco, Cal., Feb. 20.

WHAT HIVE FOR COMB HONEY?

A correspondent writes: "Would you please tell me which is the better hive for comb honey, the eight-frame or the ten-frame Langstroth? Last year I bought ten eight-frame Dovetail hives and put swarms in three of them. So you see I can't tell yet. Please advise in GLEANINGS, as I am a beginner. How is the Quinby hive? Tell how many sections you produced last year."

My present belief is that, for one who can not give his bees very much attention, the ten-frame hive is the safer. One who gives his bees sufficient attention, and uses two stories part of the year, may do better with the eight-frame hive. The advantage is on

the side of the smaller hive for one who hauls his bees much.

The Quinby hive gives excellent results in the hands of the Dadants, and is held in high esteem in France. The size of the frames makes it still safer for wintering than the ten-frame Langstroth. For one who lets his hives stand unmoved it may be better than the smaller hives, but I have no personal knowledge in the case.

I had somewhere in the neighborhood of 1500 sections filled last year, and some of that was honey-dew that will be used for feeding this spring.

C. C. MILLER.

Marengo, Ill.

A CORRECTION.

I notice some error in the mention of my entrance-closer in Straws, p. 166. Not 60, but not less than 160 hives an hour can be closed with my entrance-closer. This estimate is based on the experiments by inexperienced hands, one making it in 15 seconds, the other in 20. This would make an average of 205 per hour. At any rate, I am certain that bee-entrances can be closed with said closers at the rate of 200 per hour in L. hives of various sizes in same yard.

The detaching of the entrance-closer from the hives takes less time than above mentioned.

L. KREUTZINGER.

Chicago, Ill.

[The error is not Dr. Miller's. He copied the figure from Pickings, p. 124, and Stenog found it in the Review. We now leave the matter with Mr. Hutchinson.—ED.]

WILL DEEP SNOW SMOTHER BEES?

In answer to the above question I would give as an answer a decided no. I see on page 22 a short editorial, "Snow around the Entrances of Hives." I myself used to feel very uneasy about my bees when drifted over with snow, until I learned by experience that it would do them no harm, but, on the other hand, it was a great deal of benefit to them.

I can not explain better what I wish to say than to give you my experience along this line. As I have already stated, I used to feel very uneasy when a great snowstorm came along, for fear my bees would smother. In fact, I used to dig them out to ascertain their condition. I had never seen any thing written on this subject in any of the books or journals that I had ever read, therefore I think I am excusable for my feelings.

Last winter my bees were in 4 feet 11 inches of snow (actual measurement); and as the hives are on low stands you can easily figure out how deeply they were covered over. I use the eight-frame Langstroth hive with winter case for protection.

My yard is so situated that, when a storm comes, the hives are quickly covered with snow. When they were covered so deep last winter I found upon examination that there were three distinct crusts, any one of which would hold the weight of a man, caused by slight thawing after severe storms. In front of every hive I found a large hole thawed,

about the size of a barrel, and no snow close to the entrance at all.

I always tip my hives forward so the snow melting at the entrance may not run into them. I always welcome lots of snow. I feel just like that neighbor bee-keeper of yours who said, "There is nothing I like to see better than my hives buried up in snow, because then I know they are going to winter well." But I would add thereto, "The deeper the better."

ITALIAN BEES NOT ALWAYS BETTER THAN BLACKS FOR GATHERING HONEY.

The season of 1897 the Italians were decidedly better, especially when the fall blossoms began to wane; but in the season of 1898 there was very little difference; in fact, the blacks and hybrids were a little in the lead as to amount stored. I. S. TILT.

Filion, Mich., Jan. 14.

BEES CARRYING AND STORING EARTH.

I saw something the other day I never did before since I have been in the bee business. That was, the bees packing the ground on their legs as they do pollen, and carrying it into their hives. They had a great hole carried away. The cause, I suppose, was a can of cylinder oil that stood there, and a gallon or so leaked out. What made them work on the oil and ground, for they have no use for them separate? WM. O. HEIVLY.

Raymore, Mo.

[At certain seasons of the year, especially in the spring, bees will carry away meal, or even fine particles of sawdust. Their attraction to the latter is doubtless due to the resinous properties of pine; and their carrying away the earth, as you describe, has no doubt due to the oil itself, as you suggest. —ED.]

THE MORE EVEN FILLING OF PLAIN SECTIONS.

I used to sell honey by the section here at 12½ cents each, and they generally held out—that is, 1 lb. to the section or over. They were the 1½ without separators. I am now using 1¾ sections without separators; and if well filled they hold a pound; but if the season is not good I find the sections are lighter. I tried a few of the no-beeway. I found them more even in weight than the others, and less bother to clean. I had fears, after I had ordered them, that, when filled, they would be more difficult to clean without marring the comb; but I was agreeably surprised. I would rather handle them than the old-style sections. JAS. S. WILLARD.

Bedford, Iowa.

DRAWN FOUNDATION NO ADVANTAGE.

I sent to you and got \$1.00 worth of drawn foundation; put it on the 16th of August. We had a splendid flow for about six weeks. Bees worked it no better or quicker than they did your thin foundation. I thought you would like to know. L. P. BILLINGS.

Bloomington, Ill., Nov. 18, 1898.



J. R. M. A., Ind.—If you have dark honey we know of no way by which you can improve its color. The only thing to do is to sell it to bakers, or feed it back to bees in the spring to stimulate brood-rearing.

L. J. E., Ind.—You can transfer by placing a box hive on top of a frame hive, closing all entrance to box hive except through frame hive; but a better way, and more satisfactory, and certainly much more rapid, is the Heddon short method described in our catalog.

M. F., Ky.—I can not understand why the bees should rush out of the hive in mid-winter and die on the snow unless they were diseased. If they had dysentery, the snow in front of the hive would be badly spotted, with a good many dead bees around and near the entrance.

J. F. O., Ont.—You can place your hives containing sheets of foundation on their stands, all ready to receive the first swarm. It will not be necessary to close the entrance, for robbers will never attempt to carry away mere wax or foundation. Yes, you can use wired frames with ½ or even ¼ sheets of foundation. Bees will build new comb on the end of the sheets right over a wire, just as if it were not there; but it is an advantage to use full sheets, as there are times when the bees will build that portion just below the foundation into store or drone comb.

J. W. C. G., Ill.—I would set the combs from the hives in which the bees died, in a tight box or in a hive that is bee-proof. If there is any dead or chilled brood, perhaps it had better be cut out and buried or burned. While there is no such thing as spontaneous generation, yet matter like dead brood is a favorable medium for the growth of foul-brood germs if they are present in the apiary or, possibly, in the hive. But we have set away combs containing dead brood hundreds of times, and, so far as we know, no trouble ever followed.

A. K. B., Kan.—It will do no harm to let the bees get a little of the meal from the bin; in fact, some years ago we used to make a regular practice, in early spring, of spreading meal in sunny spots protected from the wind, for the bees to gather as a substitute for pollen; but in later years we have discontinued the practice, as it seemed to stimulate brood-rearing too early in the season. Ordinarily speaking, the first pollen from natural sources is quite early enough for the bees; for when there is real pollen to be had, then there is likely to be settled warm weather, and then there is no difficulty. Feeding this meal resulted sometimes in having combs filled full of it, sometimes almost solid—so solid, in fact, that it was of little use, as natural pollen later on seemed to be preferred.



OWING to the general crowd of matter, I have reduced the editorial space somewhat in this issue. In the mean time I would call attention to the collection of excellent articles from different writers.

I HAVE just received an article from Harry S. Howe, who is conducting a series of apicultural experiments at Cornell University. He is Mr. Coggeshall's crack bee keeper—yes, his "lightning operator." At present he is a student in the university, and during his spare moments he is carrying on experiments relative to foul brood. He has just sent in an article that will give a little "aid and comfort" to R. L. Taylor. Well, I will not say more, for Harry is abundantly able to speak for himself, which he will do in our next issue.

HONEY ADVANCING.

I HAVE just learned from our Mr. Boyden, who buys our honey, that *good* extracted honey is really a scarce article; that while the same could be bought a year ago for 5 and 5½ cents, it is now necessary to offer 7, and it is difficult to get a good article even then. There was quite a sharp demand for both comb and extracted, prior and up to the holidays, and then it fell off for comb; but lately the demand has increased, so that comb honey is running up in price. A good article could be bought a short time ago for 10 cts.; but now I notice that "fancy" brings all the way from 12 to 14, and No. 1 from 10 to 13. All of this is encouraging.

WINTER LOSSES UP TO DATE.

THE reports that are coming in gradually from all sources go to show that losses will be almost as severe as we feared they might be earlier in the season. In New York, Wisconsin, Northern Michigan, Pennsylvania, and in our other States where bees are wintered in the cellar, losses will be very moderate. The outdoor bees in double walled hives will come out in fairly good shape, according to reports; but it is the colonies in *single-walled hives on summer stands* that are going to suffer. It is the old story of the slipshod bee-keepers who are too busy or too lazy to put their bees in proper condition for winter who will be the ones to lose most heavily. It is these who demoralize the market. But it will be the thrifty, far-seeing, hard-working bee-keepers who get the honey and good prices this year.

MAKING YOUR OWN HIVES; FOOT POWER VERSUS GASOLINE AND STEAM ENGINES.

IN spite of the large supply factories over the country, there are scores of bee-keepers who make their own hives, frames, and foundation. A very few, perhaps, go so far as to make them with hand-saw and plane. But

no one whose time is worth any thing can afford to fuss with hand-tools. A good foot-power buzz-saw is an acquisition; but after one has pumped the thing for half a day at a time he begins to wish heartily that he had a little steam-engine, or some sort of power that would take that "tired feeling" out of his legs; for it is a tremendous job to make hives with a foot-power buzz-saw, as I know from experience years ago before we had our factory. Steam-engines are rather complicated to run; the steam and water must be watched; and there has always been a fear that the "blamed thing would burst." But very lately gasoline-engines have been brought down to a fine state of perfection, so that any one can run them, and the cost of them is now so low that one can not afford to buy even a steam-engine. I believe also that, for economy of running, the gasoline engine on small powers is ahead of the steam-engine.

Ascertaining that the Pierce Engine Co., of Racine, Wis., were making an excellent engine at a low price, I solicited their advertisement, telling them that there are hundreds of bee-keepers, doubtless, who would patronize them if they only would let themselves be known through our journal. Their card will be found in another column, and I suggest that our readers who are interested write to them for their catalog and price on one and two horse-power engines suitable for running a buzz-saw for doing light work.

If you buy one of them, after you get your shop all rigged up get a photo taken of the inside and send it to us, and I'll show you up.

There is real fun, to one of a mechanical turn of mind, in making things; and even if they are not nearly as good as the factory goods, there is a sort of satisfaction in thinking they are your own make.

W. S. PENDER.

WE have just enjoyed a visit of several days from Mr. W. S. Pender, of Australia, one of the leading bee-keepers of his country. He is now making a tour through the United States in the interests of bee-keeping; and as he goes about from place to place he has notebook in hand, and jots down every thing he can pick up. He goes back to his own country expecting to take with him, or order shortly after, a full set of machinery, including engine and boiler, for starting supply-manufacturing in Australia.

His father, Mr. W. L. Pender, made a tour through this country during the World's Fair in 1893. Both the senior Pender and W. S. by profession are architects. Mr. W. L., as well as his son, has long had a side issue—bee-keeping—in connection with manufacturing bee-supplies. W. L. finally dropped out, leaving the supply business to the management of the boys.

Mr. W. S. Pender is one who has accomplished not a little in the interests of bee-keeping for New South Wales. It was through his personal influence that the unjust restrictions regarding the mailing of queens to Australia were removed, so that now queens

can be sent from here to Australia for 4 cents in place of letter postage, or about a dollar.

Mr. W. S. Pender has also distinguished himself as a queen-breeder, his choice stocks being of the five-banded sort. Among his other accomplishments he is a microscopist, having made the study of foul brood and of bee-paralysis a specialty. He has written considerably for the bee journals of America; has been connected with various publications in Australia; and it is safe to assume that there is hardly a bee-keeper in all Australia who is better informed than he.

GLEANINGS predicts for the firm of Pender Bros. a bright future; and although they will doubtless enter into direct competition with ourselves we wish them all success.

THE SEASON IN CALIFORNIA; THE RECENT RAINS; PROSPECTS.

A WEEK or so ago it seemed to be an assured fact that the honey crop in California, north as well as south, would be an almost complete failure; but according to the newspapers, at the eleventh hour copious rains—yes, even floods—have been coming down in the northern part of that State. The following letter, under date of Mar. 16, from Mr. Martin, gave us a slight ray of hope:

Yesterday was set apart by the good people of this city as a day of fasting and prayer for rain, and it commenced raining in the night, and the end is not yet. To show the feeling in the matter here I will tell you what one of the judges said: "If one day of fasting and prayer will not suffice we should have two days or more, or a genuine humiliation." Then he cited instances where answers had come to such humiliation and prayer.

This rain has been coming down the coast for two days, but heretofore the rains have gotten to about such a point and then passed off to the east and left us in the dry belt. This time we are favored, and it commenced raining about midnight, and is coming in showers.

Los Angeles, March 16.

A few days later another one came to hand under date of Mar. 25, giving still more hope, and here it is:

Agreeably to my promise that I would write you again about our rains before your next issue, I would say that the rains in this locality have amounted to over two inches, and the weather has been quite humid for the past week, with occasional mist. The central portion of the State has received a greater amount of rain than we have. Northern California has received more yet. I have recent advices from Siskiyou Co., and the farmers and the miners are jubilant over the prospects. In fact, all California is wearing a smile. Grain that was sown early had become withered, and it looked as though it had been run through an oven; but under the influence of the rains it is putting on new life, and the fields are green again. I notice that sage has made a good growth here, and I am sure that, with later rains, it will yield honey this season, for its blossoms will be two or three weeks later than usual.

At this writing we have every indication of more rain; the skies are almost in a dripping condition. The blessings of Providence through the rains are of untold value to this country.

Los Angeles, Cal., March 25.

And here is another letter, from another correspondent, dated Mar. 25:

This is the fifth day of an abundant rain in this part of Northern California (Sonoma Co., 50 miles north of San Francisco). Abundant crops are now assured for orchards and vineyards; and pastureage, which would have suffered with only the 6 inches of rain which previously fell, will now be ample with the 19 inches to date, and the probability of more falling. The

fruit-bloom is nearly over in this section, and bees have done well, having stored considerable surplus.

FREDERICK WEBLEY, M. D.

Santa Rosa, Cal., March 25.

Probably it is too early yet to form much of an idea of what the honey season will be in Southern California. It will be short, probably, but even then it will save the remaining bees and doubtless millions of dollars' worth of fruit besides, as well as general farm products. May these showers of God's blessing prove to be a spiritual uplift.

While the winter has been severe, we here in the East have hopes of a large amount of clover. The frequent rains and great amount of snow give us room for encouragement.

LATER ENLARGEMENTS AND IMPROVEMENTS AT THE HOME OF THE HONEY-BEES.

ELSEWHERE we have referred to the fact of our having just installed a 400-horse-power Babcock & Wilcox boiler, costing an even \$3200. Our old boilers, consisting of a battery of three, of 60 horse power each, have long proven inadequate to do the work. At the beginning of the season we were in hopes that they would be sufficient to enable us to get through this year at least; but as the season went on, it became very evident that we should have to increase our boiler capacity, and that right speedily. There was not room to get in another 60, so the only way was to put in one big unit and throw out two of the old 60's.

The engineer just informs me that we are developing something like 325 horse power. Every machine in the establishment is busy. We have one planer alone that takes anywhere from 25 to 40 horse power to drive it; a band-saw that takes another 30 horse power; a hive-dovetailer 25 horse power more; big exhaust-fans to take sawdust and shavings away from the separate machines, that take, all told, something like 75 horse power more; and, as I said before, there is a 100-horse-power electric-power generator; two 60-horse-power electric motors; two 5 horse power; a 7½ horse; 2 horse, a 3 horse, a ½ horse, and a ¼ horse power. One boiler and one engine furnish the motor power for the entire plant. Our enlargements and new machinery recently installed enable us to keep up with our orders without running nights—a recourse that should be avoided wherever possible in the interests of good and accurate workmanship.

As our readers know, we are running all the departments, except those nearest the engine, by electric transmission. Two pairs of copper wires carry the power silently to the destined points, and there connect with the electric motors mentioned above.

The electric system, so far as tried, is very satisfactory. It is very expensive, but produces independent and regular power. The big planer has one 60-horse-power motor to run it. Whenever this big machine is started a switch is thrown in, and in a moment more the motor begins to whirl. As soon as the planer job is finished the switch is thrown out, and all the power is stopped.



Recompense no man evil for evil. * * Live peacefully with all men. * * Avenge not yourselves. * * If thine enemy hunger, feed him; if he thirst, give him drink.—ROMANS 12:17-20.

The sentiment of the above extracts from the 12th chapter of Romans is an exhortation that runs all through the Bible. The Savior's words especially seem to be full of the very same idea. He said, "Love your enemies; do good to them that hate you;" and, in short, the whole spirit of the Bible seems to plead with mankind to forget and forgive. Let go. Never mind. Even if a man has wronged you and abused you, do not lay it up against him. It is not worth while. Sermons have been preached on this point ever since the world began; but somehow mankind seems to be of *earth* and not heaven, notwithstanding. Not only unregenerate humanity pays people back in their own coin, but even church-members forget themselves, and return *evil* for *evil*. Yes, in spite of all *my* teachings and exhortations on this subject, even *I* let spite get into my heart. Well, a new thought has been coming to me lately along this line. When we get where we can really love our enemies we sometimes make the wonderful discovery that they are *not* enemies after all. We were making a mistake. I have had some pleasant experiences in this direction. Somebody who, I felt sure, disliked me, and who seemed to take pleasure in hitting me a clip, comes out in a new light. He says in actions, if not in words, "Why, bless your heart, Mr. Root, I am not an *enemy* of yours. I like to poke fun at you about your queer ways, and sometimes I smile to see you fighting your battles against selfishness like the rest of us; but I have never laid up any thing against you; and when you come right down to it I am more on your side than anywhere else." Then it begins to occur to me that one of my besetting sins is in being in too great a hurry to think evil where no evil is really intended. Sometimes I am accused of having too much faith in people; but, oh dear me! if I do once in a while get imposed upon, there are other times without number when I do not give people half the credit they deserve; and, oh how it does rejoice my heart to find out that some persons (some of the boys, perhaps) are a good deal better people than I had given them credit for being. Let us now apply these matters to the actual business of every-day life. I wish to submit to you a letter that came to us almost a year ago.

Gentlemen:—For the \$2 60 inclosed, please ship me the following goods as soon as possible, and prepay the freight, and send me freight-bill, and I will remit the freight by mail. T. D.
May 27, 1898.

The goods went promptly; and when connecting lines refused to carry them any further without prepayment of freight (for friend D. lives at what is called a "prepaid" sta-

tion) we sent promptly the 43 cents to have the goods go on through, and the book-keeper asked him to remit us the 43 cents according to promise in the above letter. Nothing was heard from him, however, until the following, which came about a month after the first letter:

The A. I. Root Co.:—The wire netting I ordered of you May 27, which you shipped June 4, has never yet reached me. Please trace it up as quickly as possible, and have it forwarded through at once. T. D.
June 28, 1898.

On receipt of the above we sent a tracer, but this tracer seemed to do but little good, as you will see by the following:

Gentlemen:—I have your card, dated July 2, saying you had sent a tracer after the roll of wire netting I ordered from you May 27; but up to this time I have not yet received it. I can not wait any longer for it, as I wanted it to make a poultry-yard; and if you can't find it you must either send me a roll at once or return my cash by return mail. I hope you will give this your prompt attention.
July 16, 1898.

T. D.

The above illustrates a thing that comes up a good many times in business—yes, a good many times in a *large* business. A railroad company does not often lose goods, but a loss happens once in a while; and a good many of our customers seem to take it for granted that we do, and ought to by rights, pay the money back when the goods do not come. In such cases we have to explain that we can not do this. After we hand the goods over to the railroad company according to order, our responsibility is at an end. Of course, we present a bill to the railroad company, and follow the goods up until the company does make good the loss; but sometimes it takes almost a year to get the money back, and in years past we have actually lost several hundred dollars by peculiar combinations of circumstances. Just as soon as we can get the money back when the goods are lost and can not be found, we return it to our customer; and where delay on account of the loss of the goods makes much trouble we often send them again upon a written promise from a good man that he will take *both* lots in case both reach him. To undertake to make good all losses in transportation is more than we can stand with the small profits we make on our goods. I know seedsmen often guarantee safe delivery; but they charge enough so they can stand the occasional loss of a package. We explained the matter in answer to the letter above, but heard nothing more about it until we received the letter below:

Gentlemen:—The wire netting I ordered from you May 27, and which your bill shows to have been shipped June 4, has never yet been received. And I therefore inclose you the bill and bill of lading, and you will please put in the bill to the railroad company, and make them pay for it as soon as possible, as I don't want to lose it. Please attend to it at once for me; and as soon as you get it keep out the freight charges on the wire and send me the balance. You will please give this prompt attention.
August 1, 1898.

T. D.

The above letter seems to be in the right spirit; and at the close of it you will notice the first mention of the 43 cents we advanced. And now comes a strange thing in the proceeding. The railroad company sent us word that the goods had been traced up according

to our orders, and delivered to friend D. a long while before his last letter was written, and our book-keeper then decided to give up the 43 cents advanced, and let it go, and pronounced our customer a bad man. The matter never came to me, for the transaction was so small that it was not considered worth while. Friend D. never replied, admitting that he had received the goods, nor did he ever send us the 43 cents. The book-keeper decided that D. was trying to get pay for the goods *after* he had received them. The railroad company made some sort of report—at least the book-keeper thinks so*—that by some means he got the goods without signing a receipt for them; and the book-keeper thinks friend D. felt vexed because the railroad company had delayed them so long, and was going to try to get the said company to pay him for them, even while he had them in his possession. Now, I do not believe this can be true. The letters sound honest and straight; but at this late date it may be a hard matter to get at the real facts in the case. We will now let the above rest for the present. When the letter below reached us, as the cash was inclosed it did not come to the book-keeper at all:

Gentlemen:—Please find inclosed my check for \$10.50, for which please ship me by freight two bushels of alsike clover seed. Send bill of freight, and I will remit it to you in stamps. Please ship as soon as possible; also please quote me your wholesale prices on 5 to 10 rolls 48-inch 2-inch-mesh poultry-netting.
Feb. 28, 1899. T. D.

As the above order was for alsike clover it came into my department, and in the spring of the year all of my helpers have strict orders to *rush* clover seed, for it is exceedingly important that it be put into the ground at just the right time. But no one noticed that it was from the man who owed us the 43 cents for freight prepaid last year; but when they applied to the book-keeper for the money to prepay the freight so the seed could go on, he replied at once to the effect that we had advanced money to that man about a year before, which he never paid; and I do not know but he smiled a little bit when he put the two items together and informed our friend and customer, that, on receipt of 72 cents, covering both items, the seed would go on. Permit me to say here that I knew nothing of this transaction whatever. If it had come to my notice I would have said, "Why, this man has sent us

* Please do not think, dear friends, that I am putting any blame on our book-keeper. The head book-keeper occupies a very important place, and I think most business men would prefer to have their book-keeper err a little in being over-careful rather than being too loose in the matter of handing over hard cash. When we *sell* goods there is supposed to be some profit to pay for the expense of keeping books, paying for postage-stamps, etc.; but where we take cash right out of the drawer, simply to do somebody a kindness, and ask him to please return promptly just the amount we have advanced, there is no sort of profit anywhere. We neglect our own business, give our time, and if the friend who has been accommodated does not respond promptly, we waste postage-stamps also. I suppose more or less of this kind of work has to be done; but a good book-keeper doesn't often get caught the *second time* in that way. If the proprietor decides to throw away some cash just because he wishes to help a customer get his clover seed in the ground in proper time it is all right; but the book-keeper is not expected to take such responsibility.

\$10.50 in cash, and it is very important that the seed be rushed through as he directs. We certainly can not think of stopping a shipment worth \$10.50 for the paltry sum of 29 cents."* But I did not see it, and so the matter went along, and the letter inclosing the 72 cents came very promptly, you may be sure, and here is what came with it:

Gentlemen:—Inclosed please find 72 cts., balance due you on freight on wire netting and alsike clover seed. Please ship the seed as soon as possible. By the tone of your letter you think, I guess, that I am not a man of my word, and that you are afraid to trust me to the freight. I can buy more goods on time than A. I. Root is worth, if I want them; and as you act so little about such a small sum of 72 cts., I don't think A. I. Root has any more religion than a cow has: and this will be my last order to you while I live. I had intended to remit to you freight on netting and clover seed as soon as I got a freight bill; but it is all right. You can ascertain my standing by writing to the list of references I gave you.
T. D.

March 8, 1899.

The above letter came directly to me. In fact, the lady who opens the letters makes it a practice, by my express desire, that any thing reflecting severely on myself or on the standing of our company, shall be submitted to me at once if I am around. The first thing we did was to direct the connecting railroad line, where the seed was stopped, to start it going as soon as possible. Then I wrote as follows:

Friend D.:—Yours of March 8 was answered by Mr. Calvert yesterday, and then referred to me. The stopping of your goods for the small amount demanded by the railroad company before they would ship any further was entirely in the hands of the book-keeper. I knew nothing about it at the time or I might have done differently. The book-keeper declined to open any further account with you because he had not succeeded in getting the small balance that we advanced last summer under similar circumstances. Furthermore, I find you wrote three or more letters complaining that you had not received wire netting, one of them dated as late as Aug. 1 last season. The book-keeper says that the railroad company shows the goods had been delivered you long before that date. Now, I am sure there is a mistake or misunderstanding somewhere. I do not believe you would keep writing us, "Goods have not come to hand" if you had received them; but you have never made any explanation of this matter, and never paid the small sum we advanced. You may be aware, perhaps, that we have lost quite a little by advancing similar sums in order to get goods to destination. I can not find by the correspondence that you ever agreed to pay this money we advanced as a kindness to you. We are not responsible for delays on the part of the railroad companies nor for loss of goods. Again, when you made the order this year you did not say a word about that little balance remaining unpaid. Had I known of it, knowing that your two bushels of clover seed ought to be in the ground, I would have paid the money out of my own pocket rather than to annoy you in this way; but you certainly can not blame our book-keeper very much under the circumstances. Now friend D. I am not going to talk hard to you, even though I do think you are greatly to blame, and I am very sorry

* I presume our readers are already aware that we guarantee freight on every thing we ship by freight or express. The railroad company, knowing we are responsible, usually push things along to their destination without delay; but these prepaid stations seem to be an exception. In the letter dated Feb. 28, 1899, T. D. says, "I have no agent at our station." If there were an agent there, of course he could hold the goods until the back charges were paid. All through Florida, and in many new regions of the country, the railroad companies frequently, for the sake of accommodation, drop freight almost anywhere out in the country, the only condition being that the charges be fully prepaid, for a train of cars can not stand still waiting for somebody to make change, even if he were on the spot when the train arrives. I make this explanation in order that some of our friends may have more charity for the railroad companies.

your clover seed did not go right along without any delay.

I am very glad indeed if you are so well fixed; but I do think you might take better care of little amounts where cash has been advanced simply to do you a favor. The goods were shipped from here promptly, but were stopped by connecting lines at Bellaire.

Yours very truly,
A. I. ROOT.

P. S.—Since the matter has been called to my attention I have decided that we can make the two bushels of alsike \$10.25 instead of \$10.50; therefore we inclose in this stamp to the value of 25 cts.

Now, dear friends, I have a double purpose in submitting this whole matter to you. It illustrates the way in which hard feelings and bitter words come up. It explains, too, why it is that so many people feel bitterness and hate toward the railroad companies. Ever since we have been in business we have been greatly annoyed by having goods stopped, by express as well as freight, because connecting lines would not carry them any further without having the charges paid in advance. The reason of this is, that railroad companies so many times carry goods long distances, which are never called for at all. Sometimes people go and inquire about the charges, and then leave the goods, and never go after them. Perhaps they laugh about it, and say they will just let the railroad company keep them. Potatoes are frozen in transit. The consignee shakes the barrel, concludes they are frozen and worthless, and goes off leaving them on the railroad company's hands as if the latter were responsible for the blizzard. There are thousands of like cases. Sometimes the company collects the freight charges of the shipper, but may be it will cost more than they are worth to do this.

Again, some railroad companies are more accommodating than others. One company receives goods without asking any advance,* but when they turn them over to another line this line refuses to take them any further without payment in advance. Now, the *agent* of the company has no authority to take even so small a sum as 29 cents, and prepay the charges on \$10.50 worth of clover seed; therefore the goods must be held until they send word back to the shipper. Well, now, the shipper may have had lots of experience like that of our book-keeper. He has paid a few cents for A, B, or C, and then used some postage-stamps and time to explain the matter, telling him they advanced the hard cash just to do him a kindness; but too often A, B, or C lets it go and forgets it, or says to himself, "Well, I guess I paid him enough for his clover seed, anyway. I think he can stand the 29 cents;" and pretty soon the shippers get to be like the railroad companies. They say, "We do not hand over the cash for anybody." You may, perhaps, be aware that many of the

large department stores that sell on such small margins are following the same plan. And, by the way, I wonder if our friends realize the expense of keeping a set of books necessary to have open accounts with thousands of people scattered all over the land—especially the expense necessary to send repeated statements to people who will not say a word for almost a whole year.

Now, there is another side that might be taken up. There is usually but a small profit on clover seed, it is true; but in the above case there was sufficient profit so we could have afforded to lose the 29 cents, even in case he did *not* pay it; and had I gotten hold of the transaction this would have been done. Yes, I think that, according to the spirit of the string of beautiful texts at the head of my talk, I might have done still more. If a man has bought some clover seed of me which ought to be put into the ground at once, and even if it required me to advance *all* my profit, and a little more, in order to help him get his seed in at the right time, I think I would advance it. But, of course, circumstances would have much to do with a case of this kind. I believe the clerks all know my disposition to be liberal; and I do not know but sometimes they keep things from me because they know I would trust a man when he ought not to be trusted. Well, if this is true I am glad that I err on the side of charity and love. Our friend speaks of references that he could give us. Yes, he did give us references; but we could hardly be expected to write for references when a man asks for a credit of only a few cents.

And now let me go back to the original 43 cents advanced first. I suppose friend D. did not send it at first because he did not feel in duty bound to pay the freight until he had received the goods; and when it looked as if he would *never* get them, he did not see why he should pay any freight at all; and, in fact, he asks us to take this trifle out of the value of the goods when we receive it. As to why he did not send it *after* he received the goods, I can not answer, nor can I see why he did not include this 43 cents when he sent the \$10.50 for the clover seed. Perhaps he forgot it. I do think he owes us an apology for asking us to collect of the railroad company the value of the goods which he already had in his possession, or he should at least explain matters in some way; but I still think, from the tone of his letters, that he means to be a fair sort of business man. In regard to his threat of not trading any further with us, such things never worry nor disturb me. We invest every year large amounts of money in advertising, it is true; but I have never yet wanted *all* of the trade. If I have *wronged* anybody, then I am worried; but if he decides to trade somewhere else when I am not to blame, it does not trouble me at all. What is my loss will be gained by some other brother; and I am sure of this, for the Bible says so. If I serve my fellow-men in an unselfish and Christianlike manner we shall always have plenty of patronage. The things to worry about are the sins in one's own heart, and not what his neighbors may do.

* By the way, perhaps I should explain that, where a railroad company sends for advance payment, they bring up to our office a written request, but do not leave any copy of such request. They go to the book-keeper with the statement; but the statement is carried right away again. I have tried to get our clerks to copy every such request, and to keep the copy. Even a few lines scrawled with a pencil on a piece of waste paper should be copied and preserved. In the above case we have no means of knowing just what the railroad company did report besides what the book-keeper can remember of the transaction.

A good many times I am called upon to settle difficulties among bee-keepers. Both parties have got their feelings stirred up, and each decides the other is a rascal. Sometimes I plead repeatedly for more charity on both sides. There is one point I fear our friends often forget. Suppose a man advertises bee-supplies, and sends out a circular. Then somebody sends him fifteen or twenty dollars for goods, perhaps right in the midst of the honey season; but the supply-dealer, if he is just starting, and is doing a small business, is likely to be sold out. Then there is a delay that is expensive. Now, I always tell the man who receives the cash that he must be very careful about being harsh or severe with such a customer. When somebody sends us money we should treat him as we would an honored guest. If a visitor comes to your home when you are having almost a wrangle about something, how quickly you all put on a smiling face and drop the unpleasantness! The new comer is your *guest*, and you are in honor bound to be *courteous* and *pleasant* in the presence of visitors. Now, the man who sends you money for something should be in one sense a privileged character—a sort of honored guest, and he should be accorded unusual courtesy—at least until you have sent him his goods; and even after that you should be a little more respectful to him because he has *traded* with you. You are under no particular obligation to be courteous and smiling to every *tramp* that comes along (especially if he walks on your clean porch with his muddy boots); but common sense as well as Christianity requires you to be courteous and pleasant to people who trade with you. I would put up with a great deal without quarreling, from a man who sends me money through the mails. I would be very careful about calling him a rascal, or even an enemy.

I have gone over this just because I fear a good many of our beginners in business fail because they are not sufficiently ready to be courteous and obliging. A man who would send us \$10.50 for clover seed could not well be considered an enemy; and I rather took pleasure in writing that little postscript where I decided to give him a little rebate on two bushels sent at one time, over the printed price for a single bushel. I hardly need mention how much time and money are *worse* than wasted in neighborhood quarrels. Yes, every little while we hear of people who lose their health by getting into a quarrel, and quite a few have lost their lives by simply allowing themselves to get into a fit of uncontrollable anger. "If thine enemy hunger, feed him; if he thirst, give him drink."

Mar. 28.—The following is just at hand.

I ordered the wire netting from you early in the spring, and it did not reach me until November. This I can prove to you by my postmaster here, who keeps the warehouse where goods are kept in as they are unloaded from the train. The reason I did not send you the freight on wire netting any sooner last year was that I did not want to pay out money for freight and be out of the wire netting also, and not get the netting when I needed it so badly. I had intended to order a lot of bee-supplies from you, and then include the freight on wire netting, but I forgot it when I ordered the clover seed.

T. D.



GRAND RAPIDS LETTUCE AS AN ORNAMENTAL FOLIAGE-PLANT.

There is nothing that pleases me more in the way of foliage-plants than a bed of Grand Rapids lettuce when it is just doing its "prettiest." I told you last fall about replacing the soil in our greenhouse-beds, the same that had been there for five or six years. Well, in filling the beds anew I made up my mind that I was going to have the best combination to make plants grow that I could scrape up. First we had a pile of decayed sods that had been piled up in a heap for a year. We spread these evenly over the bottoms of the beds. Then we got some old black manure mixed with soil that we scraped up where an old barn had been taken away. We put on perhaps two or three inches of this. Then we put in about an inch of sand, and with this as much wood ashes as I thought the beds would bear—perhaps a quarter of an inch thick all over. Then we were ready to work it all up together. After sifting the top and making it smooth and level, we put on about a quarter of an inch of tobacco dust, to keep off the green fly. Well, this compost seems to have been a success. I never saw lettuce-plants grow nicer, and there has been none of the spots in the beds where nothing would grow that we had been noticing for some two seasons past. And, by the way, some of the boys felt so sure that well water was not as good for watering, especially in the greenhouse, we made different arrangements for watering. Very likely the hard water would not make so much difference in the open air, for we always have showers to dilute and wash off the effects of the hard water. The water from our hydrants is not hard, but it contains a large amount of soda—so much that in the greenhouse it makes the ground and sometimes the plants show a whitish powder where it has been used. Well, the lower part of our greenhouse has always been more or less wet in the paths after a rain. We have tile drainage, but our stiff clay, after being walked on so much, gets so it holds water in spite of the three drains. On the south side of the greenhouse there is a path that is lower down than the rest, and this has always been more or less muddy. At each end of this path we sunk a two-foot length of 18-inch sewer-pipe. We let it down into the ground so that it was a little lower than the level of the path. On top of this is a wooden cover, to make it safe to walk around, even in the night. Well, by lifting this wooden cover a pail or watering pot can be filled at any time; and so far during the past winter there has always been water enough in these little cis'erns to supply the plants; and whether it is the water or the new soil, or both, at any rate we have a growth of lettuce and other stuff that just makes me happy.

Now to go back to the starting-point, I

would almost go to the pains of growing a bed of Grand Rapids lettuce just to look at, even if it had no value. The price has been down during the past winter because others are growing it; but even now we get 15 cents a pound retail and 10 at wholesale, and I think this pays very well. I do not know just how many pounds of lettuce can be grown on a square yard; but where it is managed just right, I tell you one can get a big lot.

CRIMSON CLOVER.

Once more crimson clover has wintered beautifully on our rich well-underdrained soil. As this is the fourth or fifth winter, I think we might call it a very sure thing in our locality and with our method of treatment. You may remember I told you of the wheat that lodged so badly last summer. There was enough seed left on the ground to make a very good stand. Well, the wheat grew so tall last fall that it fell down, and we sowed crimson clover right on it some time in the fore part of August. The clover was shaded and mulched, and it looked beautiful all during the fall, and looks just as handsome now; in fact, I do not believe I ever had any crimson clover that came through the winter looking so bright and green before. There are a few small spots where there didn't happen to be any wheat, and on these spots the severe weather has pretty nearly used up the clover; but the stand all over is, with the exception of these spots, just splendid. Of course, the wheat will stand up and grow; but I propose to turn the wheat, clover, and all, under just before the crimson clover gets into full bloom; and although I never heard of turning under wheat to grow potatoes, I am inclined to think it will work all right. Perhaps it is not practicable to furnish any sort of protection like this for crimson clover during the winter—that is, to do it profitably; but I think the clover would be a great deal better if it could have just about the kind of mulch that my lodged wheat gave it.

RECOMMENDING NEW VARIETIES OF STRAWBERRIES, ETC.

You may remember that, some little time ago, in visiting Matthew Crawford, he showed me a strawberry of such wonderful luxuriance of foliage that, had he told me it was a new variety, and very scarce and high-priced, I do not know but I would have given him \$5.00 for a single plant. But friend Crawford is not that sort of man; and then he explained to me that the wonderful growth and luxuriance were not altogether on account of the plant, but in the way he prepared the soil in that one bed. It was light sandy soil, made very rich with old stable manure, and then the ground was pounded as hard as he could make it, with a stamper, something like what we use in setting fence-posts. I went home and began to experiment on some of our plant-beds that had been manured so heavily so many years that they contained almost *too* much humus. We have a pounder worked by two men, that we use in making cement floors and similar work. I had two of the boys stamp the dirt in one of our plant-beds as

hard as they could pound it. This was along in the fall, when the ground was dry, and would bear such pounding without injury.

About this time friend Thompson sent me half a dozen Darling strawberry-plants, and I think as many of the Earliest; also some Carrie. As he called these varieties all valuable I put them into that stamped bed. They all did wonderfully well, especially the Darling. In watching the new plants I fear I forgot somewhat the stamped bed, and gave the credit to the new varieties. At the same time I began experimenting with plants potted in jadoo fiber, and a great number of them were sent as premiums to our subscribers. The next spring these six Darling plants gave a nice lot of beautiful berries, away ahead of any thing else unless it was the Earliest; and without thinking much about it I helped to boom the Darling, which the originator held at a very high price. Now, I have been greatly disappointed because we have not had more favorable reports of the Darling. In fact, on that account I have dropped it from our list of strawberries. Margaret and Nick Ohmer were also set in a pounded bed, and they both made an immense growth, and produced wonderful berries. I have been putting all of my new varieties in pounded beds, because, when one is anxious to get as many plants as he can, as soon as possible, he must furnish the best of conditions; and not *all* plants will pay him so much better in highly fertilized and compact beds than they do in the open field. After I put the Darling and Earliest in the open field and gave them the same chance as the other varieties they have been very disappointing in our locality. I learn from others, though, further south, that in some places they do well.

From this I have been learning a lesson: We should be careful, each and all of us, about recommending a new plant before we have given it *field culture* right along with the others. Perhaps I might here speak of the Gault raspberry. There has been a good deal of complaint, and quite a few have called my neighbor Gault a humbug and a swindler. Now, this is very wrong. Mr. Gault did grow, and I suppose even yet grows, Gault raspberries by the acre. On his soil and with his treatment they bear splendid crops away along till frost; and I think they do year after year. When I was regretting that I invested so much in the Gault raspberry, and gave it so much of a recommend, one of my boys remarked that they had some plants at home which they got of me, and they were doing splendidly, and bore nice crops every year. A second and third person in my employ said substantially the same thing. They declared they did not consider this raspberry a humbug at all; but the plants that we sent all over the country, far and near, have, so far as I can learn, been *mostly* failures. If our readers will forgive me I am going to be more careful in the future. I will tell you how things have done on *our* grounds; and if I deem them worthy I will furnish you sample plants or seeds at a very low price; but we should all learn better than to invest heavily in any

thing until we have tried it on our own ground. The above was suggested by receiving Bulletin 98, on small fruits, from the Ohio Experiment Station. Here is what this bulletin says about the Darling:

An early variety that gives fairly good results the first part of the season, yielding one or two good pickings. After that the berries run very small. It can not be recommended as worthy of further trial.

I am a little surprised that they did not say something about its being *extra* early. Their report on strawberries is mostly on the new kinds; and I confess it was a real pleasure to me to get an unbiased report from disinterested sources and from honest students in regard to the new strawberries that have been lauded so much through our catalogs. I think it will pay to send for this bulletin. Simply write to the Experiment Station, Wooster, Ohio. I will briefly go over what they say, mentioning some that are now much talked about:

The Clyde still ranks high, but they call it rather soft for shipping, and not of the highest quality.

Glen Mary they also recommend, but it is not quite as prolific as the Clyde, and is also too soft for shipment.

The Margaret is a superior berry, but must have high cultivation, and perhaps pounded beds such as I have described. It does not succeed under all conditions.

I am very glad to see they agree with me in recommending the Rio as one of the very best extra earlies. It is not only very early, but a nice large berry, very much superior to Michel's Early, Earliest, and all of that class.

Sample, after one season's trial, seems to warrant nearly all that has been said in its praise.

The Seaford they find rather soft, and not as productive as one might expect from the high recommendations it has received.

Here is what they have to say in regard to strawberries in their summary on the last page:

Strawberries require a large quantity of water, and this is usually more easily secured by thorough cultivation than by irrigation.

In an experiment in soil culture in 1897 there were found to be nearly five hundred barrels of water more per acre in the cultivated than in the hoed plot. This influenced the growth greatly, and in the succeeding season increased the crop from 10 to 68 per cent.

In cultivation it is better to use a plank clod-crusher, at least half of the time, rather than a cultivator all of the time.

The newer varieties of strawberries most highly commended are: Beauty, Berry's No. 2, Brownie, Clyde, Enormous, Glen Mary, Jerry Rusk, Noland, Orewiler, Sample, Superb.

This bulletin also includes reports on new raspberries, blackberries, currants, and gooseberries.

Matthew Crawford writes in a recent number of the *Strawberry Culturist*:

The man who believes that a horse-chestnut carried in his pocket keeps off the rheumatism, or that a horse-shoe over the door keeps off spooks, can not be convinced to the contrary; so the man who knows that selection is the great thing in strawberry culture, especially if he has plants for sale, can never be moved. These positive people have lots of followers, because the majority of people like to have some one to do their thinking.

It seems to me there is too grand a truth in the above to have it dropped and lost sight of.

40 per cent Discount

on 1898 Fences, and

10 per cent Discount

on Supers packed with 1893 Fences.

In order to clean out from our branches all that remain of last year's stock of fences, and supers packed with them, we offer them while they last at a sufficient reduction to make them move. Last year's fences, though not perfect, can be used by those who prefer cheapness to perfection. The cleats are $\frac{1}{2}$ in. wide, where we now make them $\frac{3}{8}$ in. and 12 to 2 inches thick, while we now make them 13 to 2 inches. Slats are a little closer together in some cases than this year. These changes are so slight as to be scarcely appreciable in results. There is some stock at all of the addresses given below, which we offer while it lasts, as follows:

'98 P fences, 60c per 100,	\$5.40 per 1000.
'98 I " 75c "	6.50 " 1000.
'98 S " 70c "	6.00 " 1000.
'98 2P or 21-S supers	\$1.10 for 5; \$2.20 for 10.
'98 4P or 41-S "	1.80 for 5; 3.60 for 10.
'98 AD52P or 1-S hive	5.00 for 5; 9.00 for 10.
'98 AD64P or 1-S hive	6.00 for 5; 11.00 for 10.

Usual extras for 10-frame supers and hives
A full supply of latest goods can also be had of

The A. I. Root Co., Medina, Ohio.

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25c for one year's subscription for the brightest, newest, and best **MUSICAL JOURNAL** in the U. S. Five pages new and original songs **FREE**, and music in each number. Sample copy **FREE**.
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For Sale. Seventy-five colonies of bees on eight-frame Lanestroth and Heddon hives at \$3.00 each. Also a quantity of hives, combs, supers, and section-cases.

F. R. DAVENPORT, Box 333, Kalamazoo, Mich.

EARLY QUEENS NOW READY, \$1.00; six for \$4.50. After April 15, 75c; six for \$4.25; 12 for \$8.00. May, six for \$3.75; dozen for \$7.25. Warranted; safe arrival guaranteed. Two yards. Big stock of fine queens carefully reared by Doolittle's method. Free circular.
J. B. CASE, Port Orange, Fla.

Queens. I will be ready as usual to furnish queens the coming season. Many unsolicited testimonials tell of the superiority of the Laws strain of **FAULTLESS 5-BANDED WORKERS**. **BREEDING QUEENS** always on hand. Price \$2.50 each. I am also breeding the leather-colored stock from imported mothers. Tested queens of either strain, \$1.00 each; 6 for \$5.00. Untested, 75c each; 6 for \$4. Queens ready in season.
W. H. LAWS, Lavaca, Seb. Co., Ark.

In writing, mention Gleanings.

CASH FOR BEESWAX.

Will pay 26 cents per pound cash, or 28 cents in trade, for any quantity of good, fair, average beeswax, delivered at our railroad station. The same will be sold to those who wish to purchase, at 33 cents for best selected wax. Old combs will not be accepted under any consideration.

Unless you put your name on the box, and notify us by mail of amount sent, we can not hold ourselves responsible for mistakes. It will not pay as a general thing to send wax by express.

THE A. I. ROOT CO. Medina, Ohio.